



CITY OF CARLISLE.

REPORT

ON THE

Sanitary Condition of the City of Carlisle,

FOR THE YEAR 1915,

BY

JOSEPH BEARD,

D.P.H. (Cambr.), F.R.S. (Edin.)

Of Gage's Inn, Barrister-at-Law;

Member of the Royal College of Surgeons, Edinburgh;

Member of the Royal College of Surgeons, London;

Lecturer of the Royal College of Physicians, London.

Medical Officer of Health,

School Medical Officer,

Chief Tuberculosis Officer, etc.

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CARLISLE :

CHAS. THURNAM & SONS, PRINTERS, ENGLISH STREET.

TO THE CHAIRMAN AND MEMBERS OF THE HEALTH
COMMITTEE.

Gentlemen,

In accordance with the Regulations and Memoranda of the Local Government Board, I have the honour to submit my Annual Report upon the Health and Sanitary Condition of the City of Carlisle during 1915.

The report deals with the Birth, Mortality Statistics, and other work carried out during the year, including the measures adopted against the prevention of epidemic and other diseases.

The staff of the Department has been considerably depleted owing to some members joining His Majesty's Forces and others leaving, in consequence of which certain matters have not received the attention one would desire, but having regard to many additional duties which have arisen, I am of opinion that the work has been dealt with efficiently.

I have to thank you for your support during the year.

I am, Gentlemen,

Your obedient Servant,

JOSEPH BEARD.

Public Health Department,

19 Fisher Street, Carlisle.

31st March, 1916.

Statistical Summary for the Year, 1915.

Area in Acres	...	...	...	...	4,488
Population (Estimated 1915)	...	...	...	...	52,625
Population per acre (Density)	...	...	...	...	11.7
Population estimated by Registrar-General	...	...	...	...	50,036.
Number of Families or separate Occupiers (estimated)	...	...	...	...	10,723
Rateable Value	...	...	...	...	£265,841
Number of Inhabitants per House (Census 1911)	...	...	...	...	4.4
Birth-rate per 1,000 living	...	...	...	...	22.6
Nett Death-rate per 1,000 living	...	...	...	...	18.1
Standardised Death-rate per 1,000	...	...	...	...	18.4
Infant Mortality Rate...	...	...	...	...	144.3
Percentage of Uncertified Deaths	...	...	...	...	3.4
Total Deaths from Diarrhoea	...	...	...	...	29
Phthisis, Death-rate per 1,000 living	...	...	...	...	1.5
Infectious Cases Notified (including Tuberculosis 250 cases)	...	...	...	...	967
Infectious Cases Isolated at the Fever Hospital	...	...	...	...	326
Total Rainfall in inches	...	...	...	...	31.09

BIRTHS.

The number of births registered during the year was 1,192, of which 604 were males and 588 females; these figures show a decrease of 17 births over the figures for 1914.

Calculations based upon the estimated population of 52,625 give a birth-rate of 22.6 per 1,000, which shows a decrease of 0.4 per 1,000 over the figures for the year 1914.

Year.	Number of Births Registered.			Total.
	Males.	Females.	Per 1,000 of the population.	
1914	629	580	23.0	1209
1915	604	588	22.6	1192

The birth-rate for England and Wales during 1915, calculated as a whole, was 21.9 per 1,000, and for the 96 great towns, to which classification Carlisle belongs, 22.8 per 1,000. The 148 smaller towns show an average birth-rate of 21.6 per 1,000, whilst the rate for England and Wales, less the 244 great and small towns, was 20.7 per 1,000.

ILLEGITIMATE BIRTHS.

The number of illegitimate births registered during 1915 was 65, making a figure equal to 54.5 per 1,000 of the total births.

The distribution of the illegitimate births to the Registration Sub-Districts was as follows:—

St. Cuthbert's—23, equivalent to 44.8 per 1,000 of the total births in that district.

St. Mary's—40, equivalent to 64.9 per 1,000 of the total births in that district.

Stanwix—2, equivalent to 36.3 per 1,000 of the total births in that district.

Dalston—Nil.

Wetheral—Nil.

The number of illegitimate births registered shows a decrease of 11 over the figure for 1914, which was 76.

Upon investigation I find that in four instances, which is equal to 6.1 per cent. of the total illegitimate births, the mother was not a resident of the City.

Table showing details of the Births in the several Sub-Registration Districts, 1915.

QUARTER ENDING.	ST. MARY.		ST. CUTHBERT.		STANWIX.		DALSTON.		WETHERAL.		TOTALS FOR CITY.
	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	
March 31	98	88	61	60	11	7	1	1	...	...	327
June 30	80	82	54	71	7	6	...	1	...	...	301
September 30	79	63	71	65	9	2	1	2	...	...	292
December 31..	63	63	64	67	3	10	1	...	1	...	272
Totals... ..	320	296	250	263	30	25	3	4	1	...	1192

DEATHS.

The total number of deaths registered during 1915 was 1,027 as compared with 848 in 1914. 33 deaths occurred of persons belonging to the City in institutions and other places outside, while the deaths of 105 persons not belonging to the City occurred in public institutions and other places within the City.

Excluding the 105 deaths of persons belonging to other districts, and substituting the 31 deaths of Carlisle residents which occurred in the districts beyond the City boundaries, a nett figure of 953 remains. This gives a nett death-rate of 18.1 per 1,000, while the standardised death-rate for the City is equivalent to 18.4 per 1,000 of the estimated population living at all ages.

The standardised death-rate for the whole of England and Wales for 1915 was 14.8 per 1,000 living at all ages, and for the 96 great towns, amongst which Carlisle figures, 15.9 per 1,000; the death-rate for the 148 smaller towns was 14.2 per 1,000, whilst the death-rate for England and Wales (less the 244 great and small towns) was 13.6 per 1,000 living.

It will be seen that the death-rate for the past year is considerably in excess of that for the year 1914. This increase is principally due to the high rate of mortality from respiratory diseases and certain febrile diseases in which death was brought about by respiratory complications, as in Measles, Influenza, and Whooping Cough.

A subsequent table shows diseases principally responsible for the excessive mortality.

Table showing details of the Deaths in the several Sub-Registration Districts, 1915.

QUARTER ENDING.	ST. MARY.				ST. CUTHBERT.				STANWIX.				DALSTON.				WETHERAL.				TOTALS FOR CITY.
	Males.		Females.		Males.		Females.		Males.		Females.		Males.		Females.		Males.		Females.		
	Under 5 years	Over 5 years	Under 5 years	Over 5 years	Under 5 years	Over 5 years	Under 5 years	Over 5 years	Under 5 years	Over 5 years	Under 5 years	Over 5 years	Under 5 years	Over 5 years	Under 5 years	Over 5 years	Under 5 years	Over 5 years	Under 5 years	Over 5 years	
March 31	33	56	32	61	13	41	15	44	2	5	1	7	1	...	...	...	1	...	...	...	312
June 30	18	71	19	49	17	35	14	42	...	6	3	7	...	...	...	...	1	...	...	...	282
Sept. 30	17	41	8	39	10	31	9	33	1	7	...	2	...	1	...	...	...	...	...	...	199
Dec. 31	13	45	14	40	12	40	18	41	1	3	3	3	...	1	...	...	...	...	...	...	234
TOTALS	81	213	73	189	52	147	56	160	4	21	7	19	1	2	...	...	1	1	...	...	1027

Table showing the number of Deaths at all Ages and at several Age periods.

No. of Deaths at all ages and at several age periods ...	All Ages.	Under 1 and 1 Year.	5 and under 15.	15 and under 25.	25 and under 65.	65 and up- wards.	St. Mary's.	St. Cuthbert's.	Stanwix.	Dalston.	Wetheral.
	1027	173	102	54	78	326	294	556	415	51	3	2

The following list shows the number of deaths of persons not belonging to the district occurring in public institutions and other places within the City.

Cumberland Infirmary	...	...	...	62
Private Nursing Homes	...	...	...	13
Strathclyde House	...	...	...	8
Citadel Station	...	...	...	6
Fusehill Hospital	...	...	...	6
Private Homes	...	...	...	3
Hotels	...	...	...	2
Auxiliary Military Hospitals	...	...	...	2
The Castle	...	...	...	1
River Eden	...	...	...	1
Fever Hospital	...	...	...	1
				105

The following table shows the Birth-Rate and Death-Rate as compared with England and Wales for the year.

	Annual Rate per 1,000 living.			Deaths under 1 Year to 1,000 Births.
	Births.	Deaths.		
		Crude.	standard-ised.	
England and Wales	21.9	15.1	14.8	110
96 Great Towns (including London)...	22.8	15.6	15.9	117
148 Smaller Towns	21.6	14.0	14.2	114
England and Wales, less the 244 Towns ...	20.7	14.8	13.6	98
CARLISLE	22.6	18.8 †	18.4 ‡	172

† Includes deaths of Non-Residents in the City.

‡ The factor for correction as supplied by the Registrar-General is 1.0200.

The following table shows the Vital Statistics for the whole City during 1915 and previous years.

YEAR.	Population estimated to Middle of each Year	BIRTHS.			TOTAL DEATHS REGISTERED IN THE DISTRICT.		TRANSFERABLE DEATHS.		NETT DEATHS BELONGING TO THE DISTRICT.			
		Uncorrected Number.	Nett.		Number.	Rate.	of Non-residents registered in the District.	of Residents not registered in the District.	Under 1 Year of age		AT ALL AGES.	
			Number.	Rate.					Number.	Rate per 1,000 Nett Births.	Number.	Rate.
1	2	3	4	5	6	7	8	9	10	11	12	13
1910	51,433	1145	1145	22.2	683	13.2	63	28	125	110	648	12.6
1911	46,420	1109	1106	23.8	776	16.7	60	17	161	145	733	15.7
1912	52,225	1149	1149	20.2	823	15.7	63	23	120	104.4	783	14.0
1913	52,497	1164	1164	22.1	821	15.6	76	24	148	127.1	769	14.6
1914	52,530	1209	1209	23.0	848	16.1	69	22	148	122.4	801	15.2
1915	52,625	1192	1192	22.6	994	18.8	72	31	172	144.3	953	18.1

	Census. 1911.	1915.
Area of District in acres (exclusive of area covered by water)	2,025	4,488
Total population at all ages... ..	46,420	*52,625
Number of families or separate occupiers	10,181	*10,723
Average number of persons per house... ..	4.4	*4.9

* Estimated.

The following public and other Institutions are within the City:—

The Union Workhouse and its Infirmary.
The Cumberland Infirmary.
Carlisle Non-Provident Dispensary.
The Crozier Lodge Isolation Hospital.
Strathelyde House (Home for Incurables).
St. Joseph's Home (aged and infirm persons).
Chadwick Memorial (Industrial School).
Corporation Dispensary and School Clinic.

The following table sets out the Cause of and the Ages of Death of 953 persons belonging to the City.

CAUSES OF DEATH.		NETT DEATHS AT THE SUBJOINED AGES OF "RESIDENTS" WHETHER OCCURRING WITHIN OR WITHOUT THE DISTRICT.									TOTAL DEATHS WHETHER "RESIDENTS" OR "NON-RESIDENTS"
		All Ages.	Under 1 year.	1 and under 2.	2 and under 5.	5 and under 15.	15 and under 25.	25 and under 45.	45 and under 65.	65 and up- wards	INSTITUTIONS IN THE DISTRICT
1		2	3	4	5	6	7	8	9	10	11
All Causes	Certified ...	920	166	56	38	51	52	114	174	169	231
	Uncertified ..	33	6	1	2	...	...	2	9	13	...
Enteric Fever	...	..	...	...	...	...	...	...	...	...	1
Smallpox ...	...	...	...	...	...	...	...	...	...	...	...
Measles ...	...	35	9	12	9	4	1	...	...	...	1
Scarlet Fever	...	10	...	...	4	5	1	...	...	...	6
Whooping Cough	...	23	12	9	2	...	...	...	...	...	...
Diphtheria and Croup	...	12	...	1	3	8	...	...	...	...	8
Influenza ...	...	27	2	1	...	1	2	5	3	13	...
Erysipelas ...	...	1	...	...	...	...	...	...	1	...	1
Phthisis (Pulmonary Tuberculosis)	...	80	...	...	...	3	22	35	15	5	16
Tuberculous Meningitis	...	15	6	3	4	2	...	...	...	...	...
Other Tuberculous Diseases	...	12	2	1	...	4	4	1	...	...	3
Cancer, Malignant Disease	...	58	...	...	...	...	1	3	28	26	23
Rheumatic Fever	...	5	...	...	...	2	1	...	2	...	1
Meningitis ...	...	13	6	1	1	3	1	...	1	...	2
Organic Heart Disease	...	100	...	...	...	...	6	10	34	60	24
Bronchitis ...	...	61	10	6	...	1	1	6	10	27	4
Pneumonia (all forms)	...	84	14	14	9	7	4	9	14	13	7
Other Diseases of Respiratory Organs	...	12	1	...	1	...	2	3	5	...	1
Diarrhoea and Enteritis	...	29	19	2	2	1	1	3	...	1	3
Appendicitis and Typhlitis	...	2	...	...	...	...	1	...	1	...	9
Cirrhosis of Liver	...	2	...	...	...	...	...	1	...	1	1
Alcoholism	...	...	...	...	...	...	...	...	...	...	...
Nephritis and Bright's Disease	...	25	...	...	...	1	2	4	11	7	4
Puerperal Fever	...	...	...	...	...	...	...	...	...	...	...
Other Accidents and Diseases of Preg- nancy and Parturition	...	3	...	...	...	...	...	3	...	...	1
Congenital Debility & Malformation, including Premature Birth	...	64	62	1	...	1	...	...	...	...	4
Violent Deaths, excluding Suicide	...	28	2	...	4	3	1	5	8	5	41
Suicide	...	4	...	...	...	...	...	3	1	...	...
Other Defined Diseases	...	243	26	6	1	5	2	25	47	131	68
Diseases ill-defined or unknown	...	6	1	...	...	...	...	...	2	3	2
Totals		953	172	57	40	51	52	116	183	282	231
Sub- Entries included in above figures.	Cerebro-spinal Meningitis	...	...	..	...	...	1	...	...	...	...
	Poliomyelitis	...	...	...	...	...	...	...	...	...	...
	Lobar Pneumonia	16	1	2	3	2	3	1	2	2	...
	Pneumonia not defined	47	10	9	3	3	1	8	8	5	3

Table showing the population, births, birth-rate, and infant mortality rates for the past thirty years.

Year.	Population.	No. of Births.	Rate per 1000.	Infant Death-Rate per 1000 births.
1885	37,881	1285	34.0	164
1886	38,402	1262	33.0	146
1887	38,793	1214	31.3	141
1888	39,027	1307	33.5	129
1889	39,944	1224	30.6	142
1890	40,500	1215	30.0	150
*1891	39,200	1207	30.8	137
1892	39,750	1213	30.5	123
1893	40,150	1389	34.5	178
1894	41,022	1315	32.0	133
1895	41,658	1311	31.4	142
1896	42,294	1246	29.6	137
1897	42,930	1324	30.8	134
1898	43,566	1311	30.0	183
1899	44,202	1300	29.4	145
1900	44,838	1354	30.1	134
*1901	45,478	1246	27.3	129
1902	46,078	1245	27.0	117
1903	46,500	1322	28.4	118
1904	47,350	1278	26.7	152
1905	47,920	1168	24.3	139
1906	48,425	1227	25.3	132
1907	49,400	1178	23.8	143
1908	50,047	1223	24.4	129
1909	50,675	1149	22.6	123.6
1910	51,433	1145	22.2	110.0
*1911	46,432	1109	23.8	145.0
1912	46,420	1142	24.6	102.4
1913	52,497	1164	22.1	127.1
1914	52,530	1209	23.0	122.4
1915	52,625	1192	22.6	144.3

* Census Population.

The following table shows the gross Death-rate from 1881 to 1915 inclusive :—

Year.	Deaths from all causes.		Deaths from Principal Zymotic Diseases.	
	No. Registered.	Rate per 1000 of Population.	No. Registered.	Rate per 1000 of Population.
*1881	717	20.0	67	1.8
1882	852	23.6	189	5.0
1883	779	21.0	67	1.8
1884	783	21.0	38	1.0
1885	769	20.3	66	1.7
1886	745	19.4	62	1.6
1887	772	19.9	75	1.9
1888	722	18.5	59	1.5
1889	723	18.1	69	1.7
1890	792	19.5	65	1.6
*1891	789	20.1	63	1.6
1892	805	20.2	55	1.3
1893	868	21.6	145	3.6
1894	780	19.2	44	1.1
1895	794	19.4	33	0.8
1896	753	18.2	30	0.7
1897	811	19.4	54	1.3
1898	935	22.2	103	2.4
1899	818	19.2	42	0.9
1900	807	18.8	60	1.4
*1901	810	17.8	64	1.4
1902	856	18.5	82	1.7
1903	813	17.4	58	1.2
1904	933	19.7	63	1.3
1905	783	16.3	66	1.3
1906	811	16.7	34	0.7
1907	848	17.1	77	1.5
1908	713	14.2	42	0.8
1909	735	14.5	30	0.5
1910	683	13.2	21	0.4
*1911	776	16.7	96	2.06
†1912	813	17.5	81	1.7
1913	821	15.6	44	0.8
1914	848	16.1	53	1.0
1915	1027	19.5	109	2.07

*Census Years.

†Old City.

Statistics for years previous to 1881 have been taken out to facilitate printing, for which see previous reports.

The following table shows the diseases causing the largest number of Deaths during 1915, and a comparison with those of 1914.

DISEASE.	1914.	1915.	Increase or Decrease
Pulmonary Tuberculosis & Phthisis ...	70	80	+ 10
Pneumonia	54	84	+ 30
Other Diseases of Respiratory System ...	43	73	+ 30
Measles	2	35	+ 33
Influenza	9	27	+ 18
Whooping Cough	9	23	+ 14
Diphtheria, Membranous Croup ...	3	12	+ 9
Disease of Heart and Blood Vessels ...	154	165	+ 11
Rheumatic Fever, Chronic Rheumatism, Rheumatoid Arthritis	3	10	+ 7
Cancer and Malignant Disease ...	68	58	— 10
Kidney and Bladder Disease...	26	31	+ 5
Diseases of Digestive System ...	45	51	+ 6
Diseases of Urinary System ...	26	31	+ 5
Diseases of Nervous System ...	45	52	+ 7
Prematurity and Injury at Birth ...	23	38	+ 15
Deaths from Violence—			
Accidents or Negligence ..	30	26	— 4
Homicide ... ..	...	2	+ 2
Suicide	12	4	— 8

+ Shows an increase in the number of deaths.

-- Shows a decrease in the number of deaths.

Table showing details of the Number and Nature of all Deaths of Persons belonging to the City during the year.

CAUSE OF DEATH.	AGES.												Totals.
	0 to 1	1 to 2	2 to 5	5 to 15	15 to 25	25 to 35	35 to 45	45 to 55	55 to 65	65 to 75	75 to 85	85 and upwards	
I.—GENERAL DISEASES.													
Measles (Morbilli) ...	9	12	9	4	1	...	...	...	...	...	...	...	35
Scarlet Fever ...	...	...	4	5	1	...	...	...	...	...	...	...	10
Influenza ..	2	1	...	1	2	4	1	2	1	10	2	1	27
Whooping Cough ...	12	9	2	...	...	...	...	...	...	...	...	...	23
Mumps ...	...	...	...	1	...	...	...	...	...	...	...	...	1
Diphtheria, Membranous Croup	...	1	3	8	...	...	...	...	...	...	...	...	12
Epidemic Diarrhoea, Epid. (or Zym.)	...	...	...	...	...	...	...	...	...	...	...	...	...
Enteritis ...	1	...	...	...	...	1	1	...	...	...	...	...	1
Diarrhoea (not otherwise defined) ...	2	...	...	...	...	...	...	...	...	1	...	...	5
Syphilis ...	5	...	...	...	...	...	...	1	...	...	...	...	5
Pneumonia. { Lobar ...	1	2	3	2	3	1	...	1	1	2	...	...	16
{ Broncho ...	3	3	3	2	...	...	...	...	4	4	2	...	21
{ Not Defined ...	10	9	3	3	1	3	5	3	5	4	1	...	47
Erysipelas ...	...	...	...	...	...	...	...	...	1	...	...	...	1
Septicæmia Sæpræmia (not Puerperal)	...	...	...	...	...	...	...	...	...	1	...	...	1
Cellulitis ...	1	...	...	...	...	...	...	...	...	...	...	...	1
Pulmonary Tuberculosis	...	...	...	...	...	...	...	...	...	...	...	...	...
(Tuberculous Phthisis)	...	...	...	3	21	17	13	10	4	4	1	...	73
Phthisis ...	...	...	...	...	1	4	1	...	1	...	...	...	7
Tuberculous Meningitis	6	3	4	2	...	...	...	...	...	...	...	...	15
Tuberculous Peritonitis	1	...	...	1	...	...	...	...	...	...	...	...	2
Tuberc Mesenterica	1	1	...	...	...	...	...	...	...	...	...	...	2
Tubercle of other Organs	...	...	...	2	2	1	...	...	...	...	...	...	5
General Tuberculosis	...	...	...	1	2	...	...	...	...	...	...	...	3
Ptomaine Poisoning ...	...	...	...	...	...	...	...	1	...	...	...	...	1
Rheumatic Fever, Acute Rheumatism	...	...	...	2	1	...	...	1	1	...	...	...	5
Chronic Rheumatism	...	...	...	...	...	...	...	1	1	1	...	...	3
Rheumatoid Arthritis, Rheumatic Gout	...	...	...	...	...	...	...	...	...	2	...	...	2

Table showing details of the Number and Nature of all Deaths of Persons belonging to the City during the year—*continued*.

CAUSE OF DEATH.	AGES.											TOTALS.
	0 to 1	1 to 2	2 to 5	5 to 15	15 to 25	25 to 35	35 to 45	45 to 55	55 to 65	65 to 75	75 to 85		85 and up
II.—LOCAL DISEASES—continued.												
4.—Diseases of Blood Vessels.												
Cerebral Hæmorrhage. Embolism, Thrombosis	1	...	...	...	1	5	5	11	12	7	...	42
Apoplexy, Hemiplegia ... ..	...	...	...	...	...	1	...	3	5	3	...	12
Aneurism ... ..	...	...	...	...	...	...	...	2	...	...	...	2
Senile Gangrene ... ..	...	...	...	...	...	...	...	...	1	1	...	2
Blood Vessels, other Diseases...	...	...	...	...	...	...	...	...	2	7	4	13
5.—Diseases of Respiratory Organs.												
Laryngitis	1	...	1	...	...	...	...	...	...	...	1	2
Bronchitis	10	6	...	1	2	4	4	6	15	11	...	61
Emphysema, Asthma ... ..	...	...	...	1	...	...	3	1	...	...	...	5
Pleurisy ... ..	...	...	...	1	2	1	...	1	...	...	...	5
6.—Diseases of Digestive System.												
Tonsillitis, Quinsy ... ..	...	1	...	1	...	...	...	...	...	...	...	2
Gastric Ulcer ... ..	...	...	...	...	...	...	1	...	...	...	...	2
Gastritis, Gastric Catarrh	4	...	...	...	...	...	...	...	...	1	...	5
Stomach, other Diseases(not Malignant)	...	...	...	...	...	...	...	...	1	...	...	1
Ulceration of Intestines ... ..	...	...	...	...	1	1	...	...	...	...	...	2
Enteritis (not Epidemic)	8	2	...	...	1	...	...	...	...	...	...	11
Gastro-Enteritis	8	...	...	1	...	...	...	...	...	...	...	12
Appendicitis, Perityphlitis ... ..	...	...	...	...	...	...	1	...	...	...	...	2
Intestinal Obstruction ... ..	...	...	...	...	...	2	1	...	2	1	...	6
Other Diseases of Intestine ... ..	...	...	...	...	...	1	...	...	...	...	...	1
Peritonitis (not Puerperal) ... ..	...	...	...	...	1	...	1	...	...	...	...	2
Cirrhosis of Liver ... ..	...	...	...	...	...	...	...	...	1	...	...	2
Liver and Gall Bladder, other Diseases	...	...	...	...	...	1	...	...	...	...	1	3

<i>7. — Lymphatic Diseases.</i>														
Lymph. System, other Diseases	...	...	...	1	1	...	...	...	...	...	...	1	...	...
Thyroid, Body Disease	...	...	...	...	...	...	...	...	...	...	...	...	...	...
<i>8. — Diseases of Urinary System.</i>														
Nephritis (Acute), Uræmia	...	...	...	...	1	1	3	3	2	4	1	4	1	15
Chronic Bright's Disease, Albuminuria	...	...	...	1	1	...	...	2	4	1	1	...	...	10
Bladder and Prostate Disease...	...	...	...	...	...	...	...	...	...	2	2	...	...	4
Urinary System, other Diseases	...	...	...	...	...	...	...	1	...	...	1	...	...	2
<i>9. — Diseases of Generative System.</i>														
Uterine Tumour (not Malignant)	...	...	...	...	...	...	...	1	...	...	...	...	...	1
<i>10. — Accidents of Childbirth.</i>														
Puerperal Mania	...	...	...	...	...	...	...	1	...	...	...	...	...	1
Puerperal Convulsions	...	...	...	...	...	...	2	...	...	...	...	...	...	2
III.—DEATHS FROM VIOLENCE.														
<i>1. — Accident or Negligence.</i>														
Burn, Scald	...	...	...	3	1	...	...	...	...	...	...	...	...	4
Drowning	...	...	...	1	...	...	...	2	1	...	...	...	...	4
Suffocation	...	...	1	...	...	...	...	...	...	...	...	...	...	1
Otherwise	...	...	...	1	2	...	4	1	3	3	2	...	...	17
<i>2. — Homicide.</i>														
Manslaughter	...	...	...	...	...	...	...	...	1	...	...	...	...	1
Murder	...	1	...	...	...	...	...	...	...	...	...	...	...	1
<i>3. — Suicide.</i>														
Drowning	...	...	...	...	...	1	...	...	1	...	...	...	...	2
Hanging	...	...	...	...	...	...	2	...	...	...	...	...	...	2
IV.—DEATHS FROM ILL-DEFINED AND NOT SPECIFIED CAUSES.														
Old Age	...	...	...	...	...	...	...	...	...	18	30	15	...	63
Debility, Atrophy, Inanition, Marasmus	...	1	...	...	...	...	...	...	...	...	...	...	...	16
Tumour	...	...	...	...	...	...	...	1	1	...	...	...	...	2
Causes not Specified or Ill-defined	...	1	...	...	...	...	...	...	2	3	...	...	...	6

INFANT MORTALITY.

The number of deaths of infants under one year during 1915 was 172, giving an Infant Mortality rate of 144.3 per 1,000.

Particulars of the 172 deaths are set out in the table on page 19 while a study of the details on page 20 shows the diseases and defects responsible for the increase during 1915.

The Infant Mortality rate for the whole of England and Wales during 1915 was 110 per 1,000 born; for the 96 great towns (of which Carlisle is one) 117 per 1,000; for the 148 smaller towns 114 per 1,000, and for England and Wales, less the 244 great and small towns, 98 per 1,000.

The death-rate of legitimate infants under one year of age was 133.0 per 1,000 legitimate births registered.

The death-rate of illegitimate infants under one year of age was 338.4 per 1,000 illegitimate births registered.

Distribution of Deaths of Infants under one year in the several Sub-Registration Districts.

Whole District	...	...	...	<div> <div>Legitimate</div> <div>150</div> </div> <div> <div>Illegitimate</div> <div>22</div> </div>	172
St. Mary's Sub-Registration District	...	...	...	<div> <div>Legitimate</div> <div>75</div> </div> <div> <div>Illegitimate</div> <div>11</div> </div>	86
St. Cuthbert's Sub-Registration District	...	...	...	<div> <div>Legitimate</div> <div>64</div> </div> <div> <div>Illegitimate</div> <div>10</div> </div>	74
Stanwix Sub-Registration District	...	...	...	<div> <div>Legitimate</div> <div>10</div> </div> <div> <div>Illegitimate</div> <div>1</div> </div>	11
Dalston Sub-Registration District	...	...	...	<div> <div>Legitimate</div> <div>1</div> </div> <div> <div>Illegitimate</div> <div>0</div> </div>	1
Wetheral Sub-Registration District	...	...	...	Nil.	...

INFANT MORTALITY.

Net Deaths from stated causes at various ages
under One Year of Age.

CAUSE OF DEATH.				Under 1 Week.	1-2 Weeks.	2-3 Weeks.	3-4 Weeks.	Total under 4 Weeks.	4 Weeks & under 3 Months.	3 Months and under 6 Months.	6 Months and under 9 Months.	9 Months and under 12 Months.	Total Deaths under One Year.
All Causes.	Certified ...	..	36	12	6	6	60	34	31	17	24	166
	Uncertified ...	..	1	..	..	..	1	2	1	..	2	6
{	Small-pox ...	..	..	..	..	..	..	..	..	..	..	..
	Chicken-pox ..	..	..	..	..	..	..	..	..	..	..	..
{	Measles ...	..	..	..	..	..	..	..	..	2	7	9
	Scarlet Fever ..	..	..	..	..	..	..	..	..	..	..	..
{	Whooping Cough ..	..	..	..	..	..	..	3	5	2	2	12
	Diphtheria and Croup ..	..	..	..	..	..	..	..	..	..	..	..
{	Erysipelas ...	..	..	..	..	..	..	..	..	..	..	..
	Tuberculous Meningitis ...	..	..	..	..	..	..	1	2	2	1	6
{	Abdominal Tuberculosis ..	..	..	..	..	..	..	..	1	..	1	2
	Other Tuberculous Diseases ..	..	..	..	..	..	..	..	..	..	..	..
{	Meningitis (<i>not Tuberculous</i>) ..	..	..	..	..	1	1	1	2	1	1	6
	Convulsions ...	..	2	1	..	..	3	2	5	..	2	12
{	Laryngitis... ..	..	..	..	..	..	..	..	..	1	..	1
	Bronchitis ..	..	..	1	2	..	3	1	2	2	2	10
{	Pneumonia (all forms) ..	..	1	..	..	..	1	3	3	3	4	14
	Diarrhoea ...	..	..	..	..	..	..	1	1	1	..	3
{	Enteritis ...	..	..	..	..	1	1	4	6	1	4	16
	Gastritis ...	..	..	..	..	2	2	2	..	..	..	4
{	Syphilis ...	..	..	..	..	1	1	4	..	..	..	5
	Rickets ...	..	..	..	..	..	..	..	1	..	..	1
{	Suffocation, overlying ..	..	..	..	..	..	..	1	..	..	..	1
	Injury at Birth ...	..	2	..	..	..	2	..	..	..	..	2
{	Atelectasis ..	..	1	1	..	..	2	1	..	..	..	3
	Congenital Malformations ..	..	..	2	1	..	3	..	1	..	..	4
{	Premature Birth ..	..	26	4	3	1	34	1	1	..	..	36
	Atrophy, Debility & Marasmus...	..	3	3	..	..	6	9	2	..	..	17
{	Other Causes ...	..	2	..	..	..	2	2	..	2	2	8
	Totals	..	37	12	6	6	61	36	32	17	26	172	
Net Births in the year.				Legitimate, 1127. Illegitimate, 65.				Net Deaths in the year of				Legitimate Infants, 150. Illegitimate „ 22.	

Details of the number of Deaths of Infants under one year of age for the years 1914 and 1915 respectively.

Cause of Death.				1914	1915
Premature Birth	...	...	...	23	36
Diarrhoea	...	...	...	25	19
Atrophy, Debility, Inanition, Marasmus	...	...	...	19	15
Bronchitis	...	...	...	8	10
Pneumonia	...	...	...	14	14
Convulsions	...	...	...	10	12
Tuberculous Meningitis	...	...	...	4	6
Meningitis (not Tuberculous)	...	...	...	4	6
Tuberculous Peritonitis	...	...	...	1	1
Atelectasis	...	...	...	2	3
Whooping Cough	...	...	...	7	12
Congenital Defects	...	...	...	8	4
Gastritis	...	...	...	1	4
Syphilis	...	...	...	5	5
Injury at Birth	...	...	...	...	2
Suffocation	...	...	...	2	1
Influenza	...	...	...	...	2
Phthisis	...	...	...	1	...
Rickets	...	...	...	2	1
Tubercular Disease of Mastoid	...	...	...	1	...
Jaundice	...	...	...	1	...
Want of Breast Milk	...	...	...	...	2
Hernia	...	...	...	2	...
Intestinal Obstruction	...	...	...	1	...
Nephritis	...	...	...	1	...
Status Lymphaticus	...	...	...	1	...
Tuberculous Abscess	...	...	...	1	...
Tuberculosis of Intestines	...	...	...	1	...
Oidium Albicans	...	...	...	2	...
Measles	...	...	...	...	9
Tabes Mesenterica	...	...	...	...	1
Otitis, Mastoid Disease	...	...	...	...	2
Cerebral Hæmorrhage	...	...	...	...	1
Laryngitis	...	...	...	...	1
Other Causes	...	...	...	1	3
Totals	...	...	...	148	172

INFANT WELFARE, &c.

Summary of the Work carried out in connection therewith.

Number of live births notified by official letter card ...	1119
Number of still births notified by official letter card ...	42
Number of births notified otherwise than by official letter card (all of which were live births) ...	30
Number of births in which the first notification was the Sub-Registrar's return ...	18
Total ...	1209
Number of Infant deaths under one year ...	172
Number of deaths from Diarrhœa under one year ...	19
Total number of primary visits made by the Health Visitor to houses ...	1383
Total number of re-visits ...	2835

PARTICULARS OF ENQUIRIES WITH RESPECT TO FEEDING.

Number of children fed entirely on the breast ...	988
" " " " by means of hygienic (boat-shaped) bottle ...	68
" " " " by means of long tubed bottle ...	12
" " " " partly breast and partly bottle ...	34
" " " " by other means—Spoon (all pre-mature) ...	11
" " " dying soon after birth and not fed ...	15
No information obtained ...	39

PARTICULARS SHOWING THE RELATION OF DEATHS TO FEEDING.

Number of deaths of breast-fed infants	74 or 7.8%	of breast-fed infants
" " bottle " "	49 or 61.2%	of bottle-fed infants
" " infants fed by spoon	8	
Number of deaths of infants partly fed on breast and partly bottle ...	17	
No information ...	9	

During the year 228 visits were made to houses where children had been taken to be nursed for reward apart from their parents.

Out of the 180 children whose names were supplied to me by the Poor Law Authority, which is the Local Authority for the purpose of the administration of that part of the Children Act, 1908, 70 belonged to the City.

In 42 instances the child was found to have left the district at the time of the visit, and with regard to a further 17 the child had left the address and could not be traced.

INFECTIOUS DISEASES.

(Syn. Zymotic Diseases.)

The total number of cases of Infectious Disease (excluding Tuberculosis) notified during the year was 717.

The term Zymotic death-rate is applied to the aggregate death-rate from Smallpox, Measles, Scarlet Fever, Diphtheria, Whooping Cough, Fever (Typhus, Simple Continued, and Enteric), and Diarrhœa.

The number of deaths from Zymotic Disease registered was 109, which, calculated upon the estimated population (52,625), gives a death-rate of 2.07 per 1,000.

The causes of death were registered as follows:—

Diarrhœa	...	...	...	...	29
Diphtheria	...	...	...	...	12
Scarlet Fever	...	...	...	...	10
Whooping Cough	...	...	...	...	23
Measles	...	...	...	...	35
Total					109

The number of deaths from Zymotic Disease in 1913 and 1914 was 44 and 53 respectively.

Table showing the number and nature of Infectious Disease at the several age groups notified in the several Sub-Registration Districts.

NOTIFIABLE DISEASE.	Number of Cases Notified.								Total Cases Notified in each Locality.				TOTAL CASES REMOVED TO HOSPITAL.	
	At all ages.	At Ages—Years.							St. Mary's Sub- District.	St. Cuthbert's Sub-District.	Stanwix Sub- District.	Dalston Sub- District.		
		Under 1.	1 to 5.	5 to 15.	15 to 25.	25 to 45.	45 to 65.	65 and upwards.						
Smallpox	
Cholera, Plague	
Diphtheria (in- cluding Mem- branous Croup) }	68	1	17	46	4	...	..	..	15	47	5	1	51
Erysipelas	72	3	5	4	6	29	19	6	31	55	6	...	1
Scarlet Fever	562	4	118	375	47	17	1	...	343	188	25	6	273
Typhus Fever
Enteric Fever	1	...	...	...	1	...	...	...	...	..	1	..	1
Relapsing Fever, Continued Fever
Puerperal Fever	1	...	...	...	1	...	...	..	...	1	...	...	...
Cerebro-spinal Meningitis
Poliomyelitis	3	...	3	...	...	..	...	...	3	...	...	...	..
Ophthalmia Neonatorum	10	10	...	...	...	..	...	...	7	3	...	...	...
Pulmonary Tuberculosis	194	...	7	69	37	55	22	4	104	80	10	...	...
Other forms of Tuberculosis	...	56	6	12	32	5	...	...	...	28	25	3	...	..
Totals	967	24	163	526	101	101	42	10	531	379	50	7	326

Isolation Hospital or Hospitals, Sanatoria, &c.

Crozier Lodge, Newtown, Carlisle—Total available Beds 50

Smallpox Hospital, Belle Vue " " " " 12

Number of Diseases which can be concurrently treated, 5

Table showing the number of notifications of Infectious Diseases during each of the quarters of the year.

Notifiable Disease.	Number of Notifications sent in during				Totals.
	First Quarter.	Second Quarter.	Third Quarter.	Fourth Quarter.	
Scarlet Fever...	31	52	178	301	562
Diphtheria (including Membranous Croup)	16	9	10	33	68
Erysipelas ...	11	15	16	30	72
Enteric (or Typhoid) Fever	..	1	...	...	1
Typhus Fever ...	...	...	...	...	...
Smallpox ...	..	...	...	...	...
Puerperal Fever ...	...	...	...	1	1
Acute Poliomyelitis ...	...	1	2	...	3
Ophthalmia Neonatorum	7	...	3	...	10
Totals ...	65	78	209	365	717

Table showing the several Wards of the City where Deaths from the principal Zymotic Diseases occurred.

WARD.	Smallpox.	Measles.	Scarlet Fever.	Whooping Cough.	Diphtheria	Typhus Fever.	Enteric (or Typhoid) Fever.	Diarrhoea.	Totals.
Stanwix and Etterby	3	3
Rickergate	3	...	3	...	...	...	3	9
Agilionby	3	...	...	...	...	...	2	5
Greystone	6	...	...	...	...	...	3	9
St. Nicholas	6	...	2	2	...	...	1	11
Currock	1	...	1	1	...	...	3	6
Denton Holme	1	...	5	...	...	...	4	10
St. Cuthbert's	4	1	4	...	...	...	3	12
Caldewgate	8	2	7	1	...	...	4	22
Newtown and Belle Vue	...	3	7	1	8	...	...	3	22
Totals	35	10	23	12	...	...	29	109

Table showing the total number of Deaths from the principal Infectious Diseases, including Diarrhoea and Dysentery, 1909-1915, inclusive.

Year	1909	1910	1911	1912	1913	1914	1915
Total number of deaths ...	30	21	96	81	44	53	109

Table showing the Number and Nature of the Deaths from
the principal Zymotic Diseases, 1903 to 1915 inclusive.

NOTIFIABLE DISEASE.	1903	1904	1905	1906	1907	1908	1909	1910	1911	*1912	1913	1914	1915
Smallpox	4	...	...	...	...	...	...	...	...	..	...	...	...
Measles... ..	3	7	17	1	54	...	11	3	13	38	3	2	35
Scarlet Fever	5	3	5	9	6	1	6	2	2	2	...	9	10
Diphtheria	20	14	6	5	3	4	4	2	4	6	9	3	12
Whooping Cough.....	20	20	11	5	11	23	8	11	21	18	7	9	23
Typhus { Enteric or Typhoid Simple continued	...	...	5	...	...	..	1	...	...	2	...	...	...
	3	3	3	1	...	..	..	...	...	1	..	...	...

Diarrhea	3	16	19	13	3	14	...	3	56	14	25	30	29
Totals	58	63	66	34	77	42	30	21	96	81	44	53	109
Rate per 1,000 of population	1.2	1.3	1.3	0.7	1.5	0.84	0.5	.40	2.06	1.7	0.8	1.0	2.07

* Old City.

SCARLET FEVER.

(Syn. Scarlatina.)

The number of cases of Scarlet Fever notified or brought to my notice by other means during 1915 was 570, being an increase of 319 on the figure for 1914.

Of the 570 cases thus recorded, 273, or 47.8 per cent., were isolated in Hospital.

23 of the cases notified occurred in public and other institutions in the City.

10 deaths were registered from this disease during the year.

Out of the 570 cases notified as Scarlet Fever, 8 were found not to be suffering from the disease.

In 19 instances two cases, in 8 instances three cases, and in 2 instances four cases occurred simultaneously in the same house.

In 25 instances one case, in 5 instances two cases, in 3 instances three cases, in 1 instance four cases, and in 2 instances five cases occurred subsequent to the removal of the primary case from a house.

A slight increase in the number of notifications of Scarlet Fever was noted as early as the end of May, but the outbreak did not assume the dimensions of an epidemic until six weeks later. The epidemic spread of the disease gradually increased, until it reached its maximum during the month of October, when 136 cases were notified, after which it began to decline.

Although the City is never entirely free from Scarlet Fever, epidemics of the disease are found to recur at intervals of four to six years. During the past twenty-five years Carlisle has been visited by 6 epidemics of Scarlet Fever, viz., in 1890-91, 1897, 1901-2, 1905-6, 1910, and 1915, two of which, *i.e.*, those occurring in 1890-91 and 1905-6 were greater in extent, and the disease was more virulent in type, than the recent outbreak.

The recent epidemic has been conspicuous by the mildness of the disease, the number of severe cases being comparatively small, while many cases have been so mild that the initial sore throat and rash were either not observed, or were so slight as to be considered by the parents as some trivial ailment. Many cases were not diagnosed until the occurrence of a more severe case or cases in the same family, when, on investigation in a considerable number of cases, it was found that another child who had had a slight sore throat and rash, but had not been indisposed, showed signs of desquamation.

RETURN CASES.

27 cases of Scarlet Fever occurred in 16 houses to which patients recently isolated in hospital had returned.

Table showing number of notifications, number of cases isolated, number and percentage of deaths, 1908-1915.

Year.	No. of cases notified.	No. of cases isolated in Hospital.	No. of deaths.	Deaths per 100 cases.
1908	89	56	...	...
1909	119	87	6	5.0
1910	248	171	2	0.7
1911	139	104	2	1.4
1912	110	101	2	1.8
1913	164	131	0	0.0
1914	251	196	9	3.6
1915	562	273	10	1.7

DIPHTHERIA.

(Including Membranous Croup.)

The number of cases of Diphtheria notified during 1915 was 73, as against 52 during 1914 and 57 during 1913.

Of this number 15 occurred in St. Mary's, 52 in St. Cuthbert's, 5 in Stanwix, and 1 in Dalston Sub-Registration Districts respectively.

Of the 73 cases notified, 5 were found to be suffering from a disease other than Diphtheria, viz.:—

Follicular Tonsilitis	...	...	4
Simple Pharyngitis	...	...	1
			—
			5
			—

During 1915 12 deaths were registered as due to Diphtheria, the death-rate being equal to .22 per 1,000 of the estimated population, or 16.4 per cent. of the cases notified.

Of the 73 cases, 51, or 69.8 per cent., were removed to the Isolation Hospital.

No return case occurred during the year.

Table showing number of notifications, number of cases isolated, number and percentage of deaths, 1908-1915.

Year.	No. of cases notified.	No. of cases isolated in Hospital.	No. of deaths.	Deaths per 100 cases.
1908	31	20	4	12.7
1909	36	18	4	11.1
1910	37	27	2	5.4
1911	44	33	4	9.1
1912	47	33	6	12.8
1913	57	42	9	15.8
1914	52	31	3	5.8
1915	73	51	12	16.4

ANTITOXIN.

10 applications by medical practitioners were made during the year for the free supply of anti-diphtheric serum, 34,000 units being supplied.

SMALLPOX.

The district was free from Smallpox during the year.

PUERPERAL FEVER.

During the year 1 case of the disease was notified, on receipt of which all necessary precautions were taken.

MEASLES.

During the year 35 deaths from this disease were registered. Calculated upon the estimated population, this gives a mortality rate of 0.6 per 1,000 living at all ages.

The disease began to be more noticeable about the commencement of November 1914, and soon assumed the nature of an epidemic, which continued up to the end of April, after which it lost its epidemic character, afterwards being confined to isolated cases. The incidence of the disease fluctuated during certain periods of the epidemic, reaching its maximum in the month of March.

The disease, so far as I have been able to gather upon inquiry, and also from my personal observation upon a large number of cases, appears to have been of a severe type, but one has to take into consideration that the epidemic occurred chiefly during the winter months, which appears to have been an important factor in the production of the high mortality, having regard to the fact that of the 35 fatal cases which occurred during the first five months of this year, 29 (or 83 per cent.) developed pneumonia. It is also interesting to note that during the first half of the month of April, in which the mortality

from the disease was high, the weather was very cold and accompanied by dangerous east winds. Some dependence upon meteorological conditions may be inferred from the fact that colder months even in the tropics are favourable to the rise and spread of the disease.

It would be difficult to estimate the actual number of cases of the disease occurring in the City during the period under review, as in most instances the children were below school age, but it appears that the disease was general throughout the City, and that the incidence upon the ten wards was fairly uniform.

At least half the number of deaths took place in areas where dwelling houses of a good class exist, while in the remaining cases, although the dwelling houses are in many instances not of a modern type, the tenants occupying them are of the respectable artisan class, and very few of the deaths occurred either in the worst type of house or were associated with the worst class of parent, which lends weight to the opinion that the virulence of the type of the disease, together with the severe weather conditions, were the principal determining factors of the mortality.

The seasonal relationship to death was as follows :—

January	...	...	...	3
February	...	...	...	1
March	...	...	...	11
April	...	...	...	14
May	...	...	...	2
June	...	...	...	2
September	...	...	...	1
December	...	...	...	1
				—
				35
				—

Table showing the annual mortality from Measles for 30 years, 1886 to 1915 inclusive.

Year.	No. of Deaths.	Year.	No. of Deaths.		
1886	...	4	1901	...	5
1887	...	16	1902	...	10
1888	...	3	1903	...	3
1889	...	44	1904	...	7
1890	...	1	1905	...	17
1891	...	22	1906	...	1
1892	...	3	1907	...	54
1893	...	77	1908	...	0
1894	...	20	1909	...	11
1895	...	5	1910	...	3
1896	...	1	1911	...	13
1897	...	1	1912	...	39
1898	...	59	1913	...	3
1899	...	5	1914	...	2
1900	...	13	1915	...	35

SCHOOL CLOSURE,

No school was closed during the year.

ENTERIC FEVER.

(Syn. Typhoid Fever.)

During the year 2 cases only were notified, 1 of which it was subsequently thought did not suffer from the disease.

In connection with the first case I saw the patient at his home at the commencement of January. He then stated that he had been confined to his bed for five weeks, during which time he had suffered from diarrhœa, and had suffered from a discharge of blood from the bowel for five days. His general condition was not characteristic of enteric fever, and specimens of his blood gave a negative result when submitted to Widal's test. The diarrhœa continued for a long period, and convalescence was not established much before the close of

the year. The patient had spent some time in Africa, but had no illness whilst there. In spite of the absence of illness while abroad, the cause might possibly have been due to one of the many diseases met with in tropical climates, which closely simulate enteric fever, or it may have been due to tuberculosis, which, in my opinion, is the more probable explanation.

Table showing the annual number of cases of Enteric Fever notified from 1890 to 1915 inclusive.

			Annual No. of Cases.		
Cases of Enteric (Typhoid) Fever notified during 26 years of compulsory notification.	1890	21	1905	7	Average of 5 years 3.2
	1891	18	1906	5	
	1892	32	1907	1	
	1893	20	1908	2	
	1894	15	1909	1	
	1895	20	1910	6	Average of 5 years 3.8
	1896	13	1911	3	
	1897	19	1912	3	
	1898	22	1913	5	
	1899	19	1914	2	
	1900	7	1915	2	
	1901	19			
Cases of Enteric (Typhoid) Fever notified during 26 years of compulsory notification.					
Average of 5 years 21.2	1890	21	Average of 5 years 12.6	1901	19
	1891	18		1902	16
	1892	32		1903	6
	1893	20		1904	15
	1894	15			

TYPHUS FEVER.

The City was free from Typhus Fever during the year.

POLIOMYELITIS.

During the past year 3 cases of Poliomyelitis were notified, none of which terminated fatally.

The notifications were received on the 17th April, 21st and 29th July, respectively, as follows:—

Locality.	Sex.	Age.
Metcalf Street	Male	2 $\frac{6}{12}$ years.
Wigton Road	Female	3 ..
John Street	Male	1 $\frac{4}{12}$..

I visited each child several times, and at the close of the year I observed that the little sufferers exhibited the following physical defects:—

No. I.—Weakness and wasting of certain groups of muscles of the left thigh and leg, with consequent bending of the knee inwards, and the production of a certain amount of flat foot.

No. II.—Total loss of use of both legs, due to paralysis and wasting of muscles.

No. III.—Slight weakness and wasting of certain groups of the muscles of the right thigh and leg, causing a slight dragging of the foot during walking.

OPHTHALMIA NEONATORUM.

During the year 10 cases of purulent discharge from the eyes of newly born infants were notified.

In nine instances both eyes were infected, and in the remaining instance one eye only was infected.

Each case was investigated, examined, and advice given to the parents or other person in charge of the infant immediately on receipt of the notification, and were kept under observation until recovery took place.

In eight of the cases treatment was provided at home, the remaining two cases being treated at the Infirmary, one as an in-patient and the other as an out-patient, attending each day.

In nine instances the child recovered from the disease without any apparent damage to the eyes. In the remain-

ing instance, however, in which both eyes were affected, the cornea of the right eye was badly ulcerated, resulting in blindness of that eye, the left eye having recovered without apparent damage.

DIARRHŒA.

During the year 29 deaths from this disease were registered, as against 30 in 1914 and 25 in 1913.

Calculated upon the estimated population, the mortality rate shows a figure of .55 per 1.000 living at all ages.

The ages at death were as follows:—

Under 1 year	...	19	35—45 years	...	1
1—2 years	...	2	65—75 years	...	1
2—5 years	...	2			—
5—15 years	...	1			29
15—25 years	...	1			—
25—35 years	...	2			

Seasonal relationship to deaths:—

January	...	1	September	...	5
February	...	2	October	...	4
March	...	3	November	...	1
April	...	4	December	...	3
May	...	2			—
June	...	2			29
July	...	2			—
August	...	—			

Annual Mortality from Diarrhoea and Enteric (Typhoid) Fever since 1874.

Year.	DEATHS FROM DIARRHŒA.														Deaths from Enteric (Typhoid) Fever.	
	Autumn Quarter. No. Registered.	Rate per 1000 of population	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total for Year.	No. Registered.
874	35	1.50	2	2	...	...	1	1	6	20	9	6	...	3	50	23
875	27	1.30	2	...	4	1	2	4	5	12	10	2	...	2	44	24
876	12	1.10	3	1	3	3	1	...	2	5	5	1	6	7	37	10
877	10	.84	2	1	2	1	2	2	2	6	2	1	3	4	28	5
878	26	1.06	1	2	1	1	3	3	9	8	9	1	1	1	40	11
879	...	.34	2	1	1	1	...	2	2	2	...	...	1	...	12	11
880	3	1.20	...	...	5	...	...	...	3	7	21	5	1	...	42	15
881	...	.50	...	2	...	2	...	2	2	2	3	3	...	2	18	7
882	1	.55	...	1	...	...	...	1	5	7	5	1	...	...	20	9
883	8	.45	...	2	...	...	...	...	...	3	5	6	1	...	17	8
884	14	.61	2	...	...	1	1	1	7	3	4	3	1	...	23	7
885	4	.26	1	1	1	...	...	1	2	2	...	...	1	1	10	1
886	8	.60	1	2	...	...	...	2	1	1	6	7	1	2	23	6
887	7	.36	1	...	1	2	...	2	...	5	2	1	...	...	14	17
888	8	.23	1	...	1	1	...	...	...	3	5	1	...	1	13	8
889	6	.27	2	1	...	...	...	...	...	5	1	1	...	1	11	1
890	16	.54	...	...	2	...	1	...	1	7	8	1	1	1	22	2
891	5	.22	1	...	...	...	...	1	1	2	2	2	...	...	9	2
892	2	.10	1	...	...	...	...	...	...	2	2	1	...	...	4	3
893	9	.49	...	2	2	2	...	2	...	2	7	1	2	...	20	5
894	1	.09	...	...	...	...	...	...	...	...	1	1	2	...	4	2
895	3	.24	2	1	...	1	...	...	1	...	2	3	...	...	10	4
896	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3
897	4	.21	...	...	2	1	...	...	1	...	3	2	...	...	9	3
898	16	.57	...	...	2	...	1	1	1	4	11	2	1	1	24	2
899	10	.25	...	...	...	...	...	...	...	3	7	1	...	...	11	1
900	7	.53	...	...	...	1	...	4	1	3	3	8	3	...	23	2
901	11	.43	2	3	...	...	...	1	1	5	5	3	...	...	20	5
902	1	.04	...	...	...	...	...	...	1	...	...	...	1	...	2	7
903	1	.06	...	...	1	...	...	1	...	...	1	...	...	...	3	3
904	7	.33	...	...	...	...	...	1	...	4	3	2	3	3	16	3
905	10	.39	3	...	...	1	2	...	...	5	5	2	1	...	19	3
906	7	.26	2	...	1	1	...	...	...	2	5	...	2	...	13	1
907	...	.05	...	...	...	...	1	2	...	...	...	...	...	...	3	...
908	12	.28	...	...	...	1	...	...	2	3	7	...	...	1	14	...
909	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
910	2	.05	...	...	...	...	...	...	...	...	2	...	1	...	3	...
911	45	1.20	2	1	1	3	...	1	1	30	14	2	1	...	56	...
912	2	.30	1	2	...	2	2	1	...	1	1	2	2	...	14	1
913	10	.47	1	1	1	1	2	2	1	1	8	3	...	4	25	...
914	16	.59	4	2	1	2	...	2	2	3	12	1	...	1	30	...
915	7	.55	1	2	3	4	2	2	2	...	5	4	1	3	29	...

ISOLATION HOSPITAL.

Table showing number of cases removed to Hospital—

Diseases.	No. of cases admitted	Recovered.	Died.
Scarlet Fever	273	267	6
Diphtheria	51	43	8
Enteric (Typhoid) Fever ...	1	1	...
Erysipelas	1	1	...
Totals	326	312	14

Table showing case mortality of Scarlet Fever and Diphtheria isolated in Hospital compared with Home Cases.

Year.	SCARLET FEVER.				DIPHTHERIA.			
	Hospital Cases.		Home Cases.		Hospital Cases.		Home Cases.	
	No. of Cases Isolated.	Death Rate per 100	No. of Cases Isolated.	Death Rate per 100	No. of Cases Isolated.	Death Rate per 100	No. of Cases Isolated.	Death Rate per 100
1911	104	0.9	35	2.8	33	3.0	11	27.2
1912	101	1.8	9	0.0	33	6.0	14	28.5
1913	131	0.0	33	0.0	42	11.9	15	26.6
1914	196	4.6	55	0.0	31	9.6	21	0.0
1915	273	2.2	297	1.3	51	15.6	22	18.1

NOTIFICATION FEES.

The total amount paid in fees for notifications of all notifiable diseases during 1915 was £71 9s.

TUBERCULOSIS.

ADMINISTRATIVE CONTROL.

The work in connection with the treatment of tuberculosis after transmission of the notification by the Medical Officer of Health to the Dispensary, is carried out by the Assistant Medical Officer, who is also Tuberculosis Officer, and the Health Visitors, who combine the duties of School and Tuberculosis Nurses under the control and supervision of the Medical Officer of Health, who is Chief Tuberculosis Officer. The employment of a single staff for these duties insures the close co-ordination of all the branches of preventive medicine, resulting in a saving of time and the unnecessary duplication of enquiries.

The home is visited by the Nurse as soon as possible after the receipt of the notification, for the purpose of making a preliminary investigation into the home conditions and surroundings of the patient. Advice as to general and personal hygiene is given, emphasis being laid on the necessity of good food, an adequate amount of fresh air, and general cleanliness of the room occupied by the patient. If the patient is able to visit the Tuberculosis Dispensary, an appointment is made for him to attend for examination by the Tuberculosis Officer.

At the Dispensary such further information as to the home and social conditions as may be required is obtained, and the patient examined, the result of the examination being communicated to the doctor notifying the case; at the same time such suggestions as to treatment and supervision are offered as may be considered desirable. Careful instructions as to the method of living, the hygiene of the home, and the prevention of spread of infection, and appropriate literature dealing with these subjects is also given to the patient. In the case of pulmonary tuberculosis a bottle is handed to the patient, who is requested to return it with a specimen of sputum for bacteriological examination; spitting cups or flasks are also provided.

Where a record of the temperature is desirable a thermometer is provided, and the patient is instructed by the Nurse how to take and record his temperature on the chart provided.

In early cases, if it is thought that sanatorium treatment will prove the most beneficial method of treatment, arrangements are made, when the patient is willing to accept such treatment, for their admission as soon as possible to a sanatorium.

An agreement has been entered into with the Cumberland County Council for the provision of beds for the isolation of advanced cases, and for educational purposes in moderately advanced cases who are unsuitable for sanatorium treatment. It is hoped that a certain number of beds in the hospital which is to be provided by the County Council will be set aside for observation of early or doubtful cases.

The lack of accommodation for advanced cases greatly hampers the steps taken to control the spread of disease, as advanced and highly infectious cases which should be isolated have to be treated in overcrowded or otherwise unsuitable dwellings. An effort is made to minimise the risk of spreading infection by such cases by systematic visitation by the nurses, but it is found that although the patients and their friends promise to follow out the advice of the nurses with regard to general and personal hygiene, in many instances no serious effort is made to act upon the advice.

All cases of tuberculosis, whether pulmonary or otherwise, are kept under continuous supervision by the staff of the Dispensary so long as it is considered necessary, and in the case of patients who have received treatment in a sanatorium, advice and assistance, as far as possible, is given to enable them to obtain suitable employment, and in connection with this work much valuable help has

been given by the local branch of the Charity Organisation Society.

As a result of the co-ordination existing between the school and tuberculosis work, excellent opportunities are afforded for getting into touch with cases in the early stages of the disease, and although the staff undertaking the work is too small to permit of the extensive examination of contacts, special attention is paid during the inspection of school children, and the examination of special cases at the School Clinic, to children belonging to families in which a case of tuberculosis is known to exist; in this way many doubtful and early cases are discovered.

Researches conducted both in this country and on the Continent have shown an hitherto unsuspected amount of tuberculosis existing among children of school age. It has been proved that in some towns upwards of 90% of children have been infected with tuberculosis before attaining the age of 14 years. Undoubtedly all children in the first few years of their life are exposed to tubercular infection, either of bovine or more probably human origin.

Children may be divided into four groups according to the reaction they show to tubercular infection. (1) In some few cases the children possess a considerable degree of natural immunity towards the disease and no evil results follow infection. (2) Other children show no immediate symptoms following upon infection, the disease lying dormant perhaps for many years, and only becoming manifest after some acute illness such as measles, whooping cough, &c., has lowered the vitality and powers of resistance. (3) Other children, as a result of infection with the tubercle bacillus, pass through a prolonged sub-acute illness, during which a severe struggle is being waged by the body against the tubercular infection. These children may show no definite evidence of tuberculosis, but suffer from prolonged ill-health, poor nutrition, and general debility. Such a condition may continue for a

period of several years and finally terminate in the defeat of the invading tubercle bacilli with a recovery of health, or in active and manifest tuberculosis as a result of the powers of resistance of the body being overcome by the tubercle bacilli. (4) Other children with feeble powers of resistance, on being infected by tuberculosis, immediately develop the disease in an acute and manifest form, and often succumb after a brief illness.

It is now recognised that if the treatment of tuberculosis is to be successful it must be commenced while the disease is in the earliest stages, and it is for this reason that much benefit may be expected from the careful supervision and treatment of delicate and tubercular children. It is the unfortunate experience of many medical officers that a large number of cases are only brought to notice when the disease has advanced so far that the best result that can be hoped for is a temporary improvement of the condition—a permanent cure being out of the question—but in many cases even a temporary improvement is impossible, and one can only watch the steady progress of the disease without being able to check its advance.

In many cases which have been discovered and notified in a comparatively early stage, difficulty has been experienced in bringing home to the patient the gravity of the condition, and the necessity for prompt and energetic treatment. The onset of the disease is so insidious that the condition may continue to make steady progress without the patient realising that he is suffering from any serious ailment, as his only complaint is a feeling of tiredness and disinclination for exertion or effort. Many patients in such a condition absolutely refuse to be persuaded that they are suffering from tuberculosis, and scoff at the idea that sanatorium treatment is advisable. In such cases a few weeks' rest at home produces a temporary improvement, after which

the patient is able to resume his occupation, but the disease continues to make steady progress, and within a short time the patient is again compelled to take a few weeks' rest from work on account of a return of the symptoms. Such a state of affairs may continue for several months before the patient begins to realise that anything is seriously wrong with him, and as a rule, when this fact has been brought home to him, the disease has made such progress that anything more than a temporary arrest of the trouble is out of the question.

In order to eradicate tuberculosis, therefore, it is not only necessary to treat patients suffering from the disease in an active state, but it is more important to search out the children who have been in close contact with the disease and exposed to infection, and to isolate advanced and acutely infectious cases, so as to prevent the spread of infection to healthy members of the family.

The work in the City is being developed on these lines, and this development is greatly assisted by the close co-ordination which exists between school medical inspection and tuberculosis work. The full development of the scheme has of course been delayed by the war, but it is hoped that as soon as local authorities are allowed to borrow money, two more important units in the scheme for dealing with tuberculosis, viz., an open-air school and a tuberculosis hospital, will be proceeded with.

A gross total of 274 notifications of tuberculosis were received during the year, of which 24 were duplicates. Of the 250 primary notifications, 171 were received from medical practitioners, while 79 were sent in by the School Medical Officers. 194 notifications related to pulmonary tuberculosis, while 56 were in respect of other forms of the disease.

77 notifications on Form C were received, 70 of which related to the admission of tuberculous patients to various sanatoria, and 7 to Poor Law Institutions.

Summary of Notifications of Tuberculosis from January 2nd, 1915, to January 1st, 1916.

NOTIFICATIONS ON FORM A.

Ages.	Number of Primary Notifications.											Total Prim- ary Noti- fications.	Total Noti- fications on Form A.	
	65 & up- wards.													
	0-1	1-5	5-10	10-15	15-20	20-25	25-35	35-45	45-55	55-65	65			
Pulmonary Males	...	2	4	4	7	6	20	7	10	4	1	65	73	
" Females	...	3	5	3	13	11	18	10	4	4	3	74	85	
Non-pulmonary Males	...	3	4	1	3	1	1	...	...	...	...	13	15
" Females	...	3	5	4	1	3	...	...	...	...	...	19	20
Totals	...	6	14	13	24	21	39	17	14	8	4	171	193	

NOTIFICATIONS ON FORM B.

Ages.	Number of Primary Notifications.				Total Noti- fications on Form B.
	Total Prim- ary Noti- fications.				
	Under 5.	5-10	10-15		
Pulmonary Males	2	17	10	29	29
" Females	...	16	10	26	28
Non-pulmonary Males	...	8	...	8	8
" Females	...	12	4	16	16
Totals	2	53	24	79	81

NOTIFICATIONS ON FORM C.

	Poor Law Institutions.		Sanatoria.
	Pulmonary Males	Females	
Pulmonary Males	29
" Females	40
Non-pulmonary Males	1

The total number of deaths registered from all forms of tuberculosis during 1915 was 106, equal to a death-rate of 2.0 per 1,000 of the estimated population. Of this number 80 (75.5 per cent.) were due to pulmonary tuberculosis, giving a death-rate of 1.5 per 1,000 of the estimated population at all ages.

During the previous year 102 deaths were registered as due to tuberculosis, 70 of which were due to the pulmonary type of the disease, giving a death-rate of 1.3 per 1,000 from pulmonary tuberculosis. It will be seen from the above figures that the deaths from all forms of tuberculosis are 4 more than in the preceding year, and that from pulmonary tuberculosis the number of deaths recorded is 10 more.

The age and sex distribution of the deaths from tuberculosis is shown in the following table:—

Ages.	0-1	1-5	5-10	10-15	15-20	20-25	25-35	35-45	45-55	55-65	65 and over.	Totals.
Pulmonary—												
Male	...	...	1	1	3	5	17	5	7	3	...	42
Female	...	...	...	1	8	5	5	10	2	2	5	38
Non-Pulmonary—												
Male	3	4	2	...	2	...	1	...	...	...	...	12
Female	5	4	2	2	1	...	...	...	...	...	...	14
Totals	8	8	5	4	14	10	23	15	9	5	5	106

The distribution of the deaths during 1914 was as follows:—

	Pul-monary.	Non-Pul-monary.	Total.
St. Mary's Sub-Registration District	43	12	55
St. Cuthbert's Sub-Registration District	35	12	47
Stanwix Sub-Registration District	2	2	4
	80	26	106

Number of notifications per 100 deaths:—

Pulmonary Tuberculosis	...	...	Male	224
„	„	...	Female	263
Non-Pulmonary Tuberculosis	...	...	Male	175
„	„	...	Female	250
All Forms	...	...	...	236

On December 31st, 1914, 114 cases were in attendance at the Tuberculosis Dispensary. During the year 237 new cases have come under the observation of the Tuberculosis Officer, making a total of 351 cases who attended during the year.

The treatment and supervision of patients at the Dispensary has consisted of advice as to personal and general hygiene and mode of life, the value of fresh air, good food, and regular hours, and in suitable cases the administration of Spengler's Immune Korper (I.K.), together with appropriate literature bearing upon vital matters in relation to the disease. Medicines or prescriptions for medicines are not supplied to the patients at the Dispensary, any such matter of treatment being left entirely in the hands of the person's own medical practitioner. Advice and assistance are also given to the doctors in charge of the cases, if requisite, and the life of the sufferer is supervised by the periodical visits which are paid by the Nurse to the house.

826 visits have been paid by patients to the Dispensary for examination and supervision, while 43 visits to the homes of patients unable to attend the Dispensary have been made by the Tuberculosis Officers. 1,004 visits have been made to the homes by the Nurses for the purpose of advising upon and supervising the home life of the patients. 30 spitting cups and pocket flasks have been given to patients who have not been able to obtain them, while 43 thermometers have been given to patients for recording temperatures.

The sputum of 111 patients have been examined for the purpose of assisting in making a diagnosis or ascertaining whether the patients were liable to spread infection. In 54 of these cases tubercle bacilli were found to be present in the sputum.

8 patients were receiving sanatorium treatment at the beginning of the year, while 68 were admitted during the year, making a total of 76 who received sanatorium treatment. 59 patients were discharged, leaving 17 in the Sanatorium on December 31st last.

By agreement between the Corporation and the trustees of the Blencathra Sanatorium, 20 beds, which became available on completion of the extensions during the latter part of the year, have been reserved for the treatment of patients recommended by this Corporation. In order to provide accommodation for patients requiring sanatorium treatment prior to the extension of Blencathra Sanatorium, advantage was taken of vacant beds in Meathop Sanatorium, Westmorland, and the Philipson Children's Sanatorium, Stannington, Northumberland. The following table shows the number of cases treated in each of these sanatoria during the year:—

	Blencathra.	Meathop.	Stannington.	Total.
In Sanatorium on Jan. 1st, 1915	2	3	3	8
Admitted during year ...	44	2	22	68
Discharged	29	5	25	59
In Sanatorium on Dec. 31st, 1915	17	...	...	17

CONDITION OF PATIENTS ON DISCHARGE FROM
SANATORIUM.

	Blencathra.	Meathop.	Stannington.	Total.
Disease Arrested ...	3	2	7	12 20.3
„ Much Improved ...	16	1	12	29 49.2
„ Improved ...	7	1	4	12 20.3
„ Unchanged ...	3	...	2	5 8.5
„ Worse ...	...	1	...	1 1.7

The average duration of residence of 56 of the patients in the sanatoria was 91.9 days. Two children were removed by their parents after three days' residence, as they failed to settle down in the sanatorium, and one adult left the sanatorium within a week of admission for domestic reasons.

Midwives Act, 1902.

(SUPERVISION OF MIDWIVES.)

During the year 1915 15 certified midwives were registered for the practice of midwifery in the City.

At the end of each quarter of the year (and all other times when necessary) the midwives have been visited at their homes, the necessary inspections of their books, bags, appliances, &c., being made.

In two instances during the year an uncertified woman was found to be carrying on the practice of midwifery, contrary to the provisions of the Act. Legal proceedings had not been taken against the women at the expiration of the year.

During the year 591 confinements were attended by certified midwives. In 16 cases complications, either during or after labour, were recorded, while medical assistance was obtained in 64 instances.

The following notices upon the prescribed forms were sent to me by midwives:—

1.	Notice relating to sending for medical help	64
2.	Notification of Stillbirth	18
3.	Notification of Death	3

INQUESTS.

During the year the City Coroner held 76 inquests, as compared with 53 during 1914.

Of this number, 39 were holden upon the bodies of persons who had been resident within the City, and 37 upon the bodies of persons who had resided in other districts but who died within the City, 27 of the latter group being in connection with deaths resulting from the Gretna railway disaster.

7 inquests were held upon the bodies of children under 5 years, 3 of which were children under 1 year.

The finding of the Jury and the ages in these 7 cases respectively were:—

Cause.	Age.
Accidental burning	2 $\frac{1}{4}$ years
Pneumonia	2 days
Wilful murder	2 days
Accidentally suffocated in bed	7 weeks
Shock, burns accidentally received	2 years
Accidentally run over by motor car	3 years
Septic pneumonia and shock following burns accidentally received	2 years

MORTUARY.

During 1915 34 bodies were removed to the Public Mortuary, post-mortem examination being performed in 4 instances.

UNCERTIFIED DEATHS.

During the year 33 deaths were registered in which no certificate was given by a medical man, and in which no inquest was held.

During 1914 25 such deaths were registered.

The 33 deaths in question were registered as being due to the following causes:—

No.	Sex.	Age.	Cause of Death as Registered.
1	Male	*2 months	Convulsions
2	Male	59 years	Heart Disease
3	Female	*9 months	Convulsions
4	Female	*1 hour	Inanition
5	Female	70 years	Heart Failure
6	Male	*1 month	Convulsions
7	Male	74 years	Valvular Heart Disease
8	Male	54 years	Acute Rheumatic Fever
9	Female	3 years	Pneumonia after Measles
10	Female	94 years	Senile Decay
11	Male	*10 months	Whooping Cough
12	Male	91 years	Senile Decay
13	Female	82 years	Bronchitis
14	Male	76 years	Heart Failure
15	Female	62 years	Heart Failure
16	Female	38 years	Cancer
17	Female	72 years	Apoplexy
18	Female	49 years	Valvular Heart Disease
19	Female	54 years	Double Pneumonia
20	Male	89 years	Heart Failure
21	Male	85 years	Senile Decay
22	Female	42 years	Hæmorrhage of the lower bowel
23	Male	2 years	Meningitis
24	Female	55 years	Heart Failure
25	Female	83 years	Old Age
26	Male	56 years	Pneumonia
27	Male	69 years	Heart Failure
28	Female	*5 months	Convulsions
29	Female	1 year	Convulsions
30	Male	63 years	Bronchitis
31	Male	75 years	Heart Disease
32	Male	77 years	Apoplexy
33	Female	49 years	Asthma

*It will be observed that six of these thirty-three uncertified deaths were infants under one year of age.

CANCER.

The following figures include all deaths from causes coming within the general term cancer. The number of deaths registered during 1915 was 58, as against 68 in the year 1914.

Calculating the 58 cases upon the estimated population, a mortality rate of 1.1 per 1,000 at all ages is obtained.

Table of Deaths, 1909 to 1915.

Age.	Numbers.						
	1909	1910	1911	1912	1913	1914	1915
1 to 5 years ...	...	...	1	...	1	...	...
5 to 15 years ...	...	...	2	...	1	...	...
15 to 25 years ...	...	1	2	3	...	...	1
25 to 35 years ...	2	...	5	2	1	2	...
35 to 45 years ...	6	7	5	6	5	10	3
45 to 55 years .	12	11	6	18	11	10	7
55 to 65 years ...	15	11	11	18	25	20	21
65 to 75 years ...	17	11	7	10	14	16	20
75 and upwards ...	6	6	6	5	5	10	6
Totals ...	58	47	45	62	63	68	58

MILK SUPPLIES.

(DAIRIES, COWSHEDS, MILKSHOPS, &c.)

There are 46 cow byres in existence within the City, accommodating at the present time 369 milk cows.

The byres, dairy buildings, and other places from which milk is sold within the City have been regularly inspected and the milk cows kept under supervision and frequent examination by the City Veterinary Surgeon.

During the past year 32 samples of milk were purchased for the purpose of bacteriological observation from the carts of persons selling milk within the City whose dairies are situate in the County area. These samples were submitted to Professor Delépine for the purpose of inoculation experiments upon guinea pigs, in order to ascertain the presence or absence of the tubercle bacillus in the milk sample. Of the 32 samples of milk thus experimented with, two contained the tubercle bacillus. The farms from which the milk was brought into Carlisle were visited, and all the cows examined by the City Veterinary Surgeon, and all necessary preventive measures were taken.

PUBLIC HEALTH (MILK AND CREAM) REGULATIONS, 1912.

Analytical Report for the year ended 31st December, 1914:—

1. Milk; and cream not sold as preserved cream.

—	(a) Number of samples examined for the presence of a preservative.	(b) Number in which a preservative was reported to be present.
Milk ... ..	...	...
Cream	6	...

Nature of preservative in each case in column (b) and action taken under the Regulations in regard to it.

2. Cream sold as preserved cream.

(a) Instances in which samples have been submitted for analysis to ascertain if the statements on the label as to preservatives were correct.

(i) Correct statements made	...	...	4
(ii) Statements incorrect	...	...	2
			<hr/>
Total	...	...	6

(b) Determinations made of milk fat in cream sold as preserved cream.

(i) Above 35 per cent.	...	...	6
(ii) Below 35 per cent.	...	...	—
			<hr/>
Total	...	...	6

(c) Instances where (apart from analysis) the requirements as to labelling or declaration of preserved cream in Article V (1) and the proviso in Article V (2) of the Regulations have not been observed ... 2

Report of Veterinary Inspector.

During the year 242 newly purchased cows were examined in the several byres of the City, amongst which the following conditions were found:—

Disease of the Udder	...	...	...	2
Septic Poisoning	...	...	...	2
Disease of the Lungs	...	...	...	1
Tuberculous Disease of the Eye	...	...	...	1
Milk Secretion containing large quantity of blood	...	...	...	1
				<hr/> 7 <hr/>

These seven animals were returned to the sellers.

All the bovine animals exposed for sale at the Sands Cattle Market, and also at the Auction Marts, were examined, a total of 64,436 such examinations being made.

The Auction Marts were visited each Monday in the year and 12,629 pigs were examined.

At the request of the chief officials of the Public Health Department I examined 16 carcasses of beef at the Public Abattoir which, with the exception of one whole carcass of beef, and the forequarter of another carcass, I certified to be unfit for human food.

At the request of the Medical Officer of Health I visited two farms outside the City boundary and examined at one farm 45 cows and at the other farm 5 cows. I took samples of milk, and the same were submitted to Professor Delépine for bacteriological examination. One of the samples was found to contain tubercle bacilli.

6668 examinations of milk cows in the byres of the City made during the year, in order to ascertain the

presence or absence of diseases likely to affect the milk supply, resulted in the discovery of the following conditions:—

Milk Fever	...	...	...	...	5
Septicæmia	...	...	...	...	11
Double Pneumonia	...	...	...	...	1
Chill	...	...	...	...	3
Gastric Derangement	...	...	...	...	3
Abortion	...	...	...	...	2
Septic Pneumonia following Abortion					1
					<hr/> 26 <hr/>

Three animals suffering from Septicæmia, 1 from Septic Pneumonia, following abortion, and the animal suffering from Double Pneumonia died, whilst the milk of the other 21 animals was destroyed until convalescence of the animals was established.

The Corporation stud, consisting of 20 horses, was under constant observation, and I am pleased to report that with one exception the animals were free from serious illness, the exception being an aged gelding which the Corporation had been working for eleven years, which suffered from cancer and was destroyed.

An aged pony belonging to the Committee of the Burial Board was destroyed on account of lameness and old age.

On the 22nd February I received a communication from the City Police regarding two bovine animals that were thought to be in a diseased condition, which had been taken to the North Eastern Railway Cattle Dock. I visited the dock and found one of the animals in a very emaciated and diseased condition, and *in extremis*. I considered the animal to be in an unfit state to travel, and informed the railway officials of my opinion. The animal was destroyed

at the railway station, and the owner was prosecuted by the R.S.P.C.A., and a conviction obtained.

During the year I received a report regarding a bullock which had died suddenly in a field. I proceeded to the farm and examined the dead animal, and subsequently made a microscopical examination of the blood for anthrax, which was negative.

I also examined two horses suffering from skin disease concerning which I had received reports. Samples of the hair and scrapings of the skin were taken for microscopical examination, but mange parasites were not found.

HOUSING OF THE WORKING CLASSES.

HOUSING OF THE WORKING CLASSES ACT, 1890.

HOUSING, TOWN-PLANNING, &C.,¹ ACT, 1909.

During the year 1915, owing to the depletion of the staff, no houses were inspected under the provisions of the Housing, Town-Planning, &c., Act.

The subjoined table gives particulars of the proceedings taken in connection with certain houses dealt with in 1914.

In my report for the year 1914 I remarked upon the demand in the City for houses for the working classes, and that the Corporation had considered the matter, and had decided to proceed with a scheme for the erection of dwelling houses.

Plans for 36 houses, together with estimates, were prepared by the City Surveyor, sanctioned by the Council, and submitted to the Local Government Board for approval, and an inquiry was held on the 15th September, 1915, by one of the Board's Inspectors (E. Leonard, Esq.).

The Board subsequently informed the Council that they were satisfied as to the need for working class dwellings in the City. They regretted, however, that

during the present emergency they were unable to sanction loans for the purpose of housing schemes, but hoped that after the war the Council would proceed with the erection of the houses.

The Board also made certain suggestions with respect to the plans and the situation of the houses with which the City Surveyor and the Health Committee agreed, and the scheme has been amended in accordance with the suggestions of the Board, and has since been approved by the Council.

Place and Situation.	Date represented to Committee.	Date of Closing Order served under Housing, Town Planning, &c., Act, 1909.	Date of Demolition Order served under Housing, Town Planning, &c., Act, 1909.	Remarks.
5 Rickergate, and 2 Swifts Rickergate	28th Feb., 1913	8th April, 1913	28th Oct., 1913	Houses in process of demolition. Plans have been passed for the erection of new houses on the site
4, 5, 6, 7, Barley Stack	21st Nov., 1913	9th Dec., 1913	10th June, 1914	In process of demolition. Work held up on account of scarcity of labour since war began
11's Place, vix	27th Feb., 1914	16th March, 1914	28th Oct., 1914	Demolished
3, 5 Chapel Street	19th June, 1914	15th July, 1914	...	Houses made habitable
6, 18, 22, 26, Chapel Street	19th June, 1914	15th July, 1914	14th Sept., 1915	Nothing done
5 in Donald's Street, Willow	19th June, 1914	15th July, 1914	14th Sept., 1915	Site forms part of proposed site for new housing scheme
5, Willow	19th June, 1914	15th July, 1914	14th Sept., 1915	

Table showing number of dwelling houses erected in the City from 1891 to 1915 inclusive.

No. of Houses			No. of Houses		
Year.		erected.	Year.		erected.
1891	...	149	1904	...	269
1892	...	81	1905	...	181
1893	...	148	1906	...	183
1894	...	184	1907	...	42
1895	...	176	1908	...	27
1896	...	198	1909	...	7
1897	...	217	1910	...	23
1898	...	208	1911	...	11
1899	...	226	1912	...	11
1900	...	262	1913	...	18
1901	...	181	1914	...	38
1902	...	178	1915	...	9
1903	...	170			

WATER SUPPLY.

During the year samples of water were regularly taken from a domestic tap and submitted to chemical and bacteriological examination, the quality of the water, as in previous years, being uniformly good.

Chemical and bacteriological results of quarterly samples are given in the following pages, together with the results of a special examination as to the action of the water upon lead.

Total monthly distribution of Water from Cumwhinton covered reservoir during 1915.

Month.	Number of Gallons.	No. of Gallons per head, per day.
January ...	57,501,000	32.54
February ..	50,720,000	31.77
March ...	58,440,000	33.07
April ...	59,102,000	34.56
May ...	59,320,000	33.57
June ...	59,380,000	34.15
July ...	59,000,000	33.39
August ..	60,591,000	34.30
September	60,470,000	35.36
October ...	60,750,000	34.38
November	62,520,000	36.53
December	63,180,000	35.75

Total annual distribution of Water from Cumwhinton covered reservoir during the years 1911 to 1915.

Year.	Number of Gallons.	No. of Gallons per head, per day.
1911	645,490,000	31.48
1912	645,080,000	31.47
1913	665,410,000	32.53
1914	690,410,000	33.34
1915	710,974,000	34.03

Reports on Samples of Water from Domestic Tap.

CHEMICAL ANALYSIS BY DR. HELLON, WHITEHAVEN.

Results shown in grains per gallon.

1915.

CHEMICAL.	APRIL.	JULY.	OCT.	DEC.
Total Solid Matter in solution dried at 212° F	7.840	7.840	7.280	8.400
Chlorine existing as Chlorides	.560	.630	.595	.560
Ammonia	traces	traces	traces	traces
Albuminoid Ammonia ... ..	.002	.005	.003	.005
Nitrogen existing as Nitrates...	traces	traces	traces	traces
Oxygen absorbed in 15 minutes at 80° F ... ..	.026	.016	.041	.063
Oxygen absorbed in 4 hours at 80° F ... ..	.052	.038	.079	.109
Lead and other Poisonous Metals	None	None	None	None
Hardness before boiling ...	6½°	6½°	6°	6°
Hardness after boiling ...	1°	1°	1°	1°
Appearance in two-foot tube ...	Clear yellowish- green	Clear yellowish- green	Slightly turbid. Greenish- yellow	Clear yellow
Smell when heated to 100° F...	None	None	None	None
Microscopical Examination ...	Slight deposit of Vegetable debris	Vegetable debris	Vegetable debris. A few mineral particles.	Vegetable debris

A determination of the plumbo solvent action of the water was made according to the method of the Local Government Board in all samples taken during the year, with the following results:—

Lead dissolved at 11° C—

	1st	2nd	3rd	4th	5th	Average.
APRIL	50 c.c.	50 c.c.	50 c.c.	50 c.c.	50 c.c.	
	.02	.02	.02	.02	.02	.02

Lead dissolved at 17° C—

	1st	2nd	3rd	4th	5th	Average.
JULY	50 c.c.	50 c.c.	50 c.c.	50 c.c.	50 c.c.	
	.02	.04	.03	.03	.02	.03

Lead dissolved at 11° C—

	1st	2nd	3rd	4th	5th	Average.
OCT.	50 c.c.	50 c.c.	50 c.c.	50 c.c.	50 c.c.	
	.04	.04	.04	.04	.04	.04

Lead dissolved at 8.5° C—

	1st	2nd	3rd	4th	5th	Average.
DEC.	50 c.c.	50 c.c.	50 c.c.	50 c.c.	50 c.c.	
	.03	.03	.03	.03	.03	.03

BACTERIOLOGICAL EXAMINATION BY PROF. DELÉPINE, MANCHESTER.

QUANTITATIVE ANALYSIS		1915.							
A Aerobic micro-organisms growing for 3 days in nutrient gelatine at 20° C to 21° C.		Number of colonies in one gramme of water.				No. of kinds clearly recognisable.			
		APRIL.	JULY.	OCT.	DEC.	APR.	JULY.	OCT.	DEC.
Non-Liquefying Bacteria ...	8 } 14	10 } 19	1 } 8	12 } 14	1 } 8	1 } 2	1 } 3	4 } 6	
Liquefying Bacteria ...	6 } 14	9 } 19	6 } 8	2 } 14	2 } 8	1 } 2	1 } 3	2 } 6	
Other Micro-Organisms ...	...	...	1 } 8	...	...	...	1 } 3	...	
B Anaerobic Micro-Organisms ...	...	...	...	...	...	...	...	...
QUALITATIVE ANALYSIS.		1915.							
A Bacteria associated with sewage or faecal pollution ...		APRIL.		JULY.		OCT.		DEC.	
		B. Coli communis not found in 100 C. C.		B. Coli communis not found in 100 C. C.		B. Coli communis not found in 100 C. C.		B. Coli communis not found in 100 C. C.	
B Bacteria associated with disease		Not found		Not found		Not found		Not found	

PUBLIC SLAUGHTER-HOUSES.

The following Table gives particulars of carcasses killed and examined.

Animal	Total number of animals slaughtered and examined	Number of carcasses specially examined for disease	Number of cases in which the whole carcass was pronounced unfit for food	Number of cases in which portions of a carcass were pronounced unfit for food	Number of condemned carcasses affected with Tuberculosis
Oxen ...	3,510	55	45	10	30
Sheep ...	14,529	13	10	3	0
Calves ...	410	2	2	0	0
Pigs ...	4,113	2	1	1	0
Totals ...	22,592	72	58	14	30

During the year 72 diseased carcasses were thus specially referred by the Superintendent for further examination, and in 58 instances the whole carcass was certified as unfit for food, while in 14 instances part or parts of the carcass only were considered to be unfit for food.

A glance at the above table shows that out of a total of 72 diseased bovine animals examined, in 30 instances the whole carcass was affected with tuberculosis, which means that the whole carcass was so badly affected with disease that it was destroyed.

All carcasses and parts of carcasses certified as unfit for food are destroyed by burning at the Corporation destructor.

Table showing the Numbers of Cattle, Sheep, and Pigs slaughtered at the Public Slaughter-houses of the City, June to December, 1915.

			June.	July.	August.	September.	October.	November.	December.
Cows ...	...	...	45	44	35	30	40	58	66
Heifers ...	...	...	44	40	100	77	85	160	55
Bulls ...	...	...	80	25	39	54	60	32	78
Bullocks ...	...	...	56	94	67	93	96	130	100
Calves ...	...	...	31	17	24	42	20	18	24
			256	220	265	296	301	398	323
Ewes ...	...	...	260	257	467	468	549	748	600
Other Sheep ...	...	...	554	485	923	978	748	809	616
Lambs ...	...	...	292	443	...	...	...	...	...
			1,106	1,185	1,390	1,446	1,297	1,557	1,216
Sows ...	...	...	20	10	11	10	11	6	19
Other Pigs ...	...	...	272	261	286	303	299	427	406
			292	271	297	313	310	433	416

The above classification of animals slaughtered, which is now required by the Board of Agriculture, was not in force during the first half of the year.

PUBLIC BATHS.

NUMBER OF BATHERS DURING 1915.

The total number of bathers was 73,698, as compared with 68,625 in 1914 and 63,701 in 1913.

SWIMMING BATHS.				1st Class.	2nd Class.	Total.
Adults (both sexes)	...	...	...	3,687	12,855	16,542
Elementary School Children (Free)	...	...	...	...	14,781	14,781
Boys' Brigade, &c. (swimmers charged 1d. each)	...	...	...	...	3,033	3,033
Club and Contract Bathes (1st and 2nd Class)	...	...	...	...	...	4,602
Recruits, Border Regiment (free)	...	...	...	...	9,577	9,577
PRIVATE BATHS.						
Adults (both sexes)	...	...	...	6,607	16,332	22,939
Vapour	...	...	...	...	75	75
Salt	...	...	...	2	21	23
TURKISH BATHS.						
Males	...	...	...	367	1,246	1,613
Females	...	...	...	72	441	513
Totals	...	...	...	...	...	73,698

RAINFALL.

MONTHS.	1905	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915.		Average for 10 years 1905-1914.
											Rainfall. days on which Rain fell.	Number of days on which Rain fell.	
January	in. 1.42	in. 4.02	in. 1.16	in. 2.92	in. 1.69	in. 2.73	in. 1.04	in. 1.45	in. 2.17	in. 2.64	in. 3.17	20	in. 2.12
February	... 1.38	... 1.70	... 1.74	... 2.68	... 1.50	... 4.04	... 3.62	... 1.36	... 1.27	... 2.59	... 3.56	20	... 2.19
March	... 2.56	... 2.00	... 2.65	... 3.68	... 3.14	... 1.25	... 1.33	... 3.81	... 3.37	... 2.67	... 1.88	15	... 2.64
April	... 2.90	....94	... 2.06	... 2.08	... 2.52	... 1.69	... 2.75	....42	... 2.77	... 1.36	... 1.91	15	... 1.94
May	... 1.56	... 3.80	... 3.30	... 3.28	....81	... 2.07	... 2.32	... 1.81	... 1.78	... 1.73	... 2.04	11	... 2.24
June	... 1.26	... 1.46	... 4.64	... 1.70	... 2.95	... 1.53	... 3.79	... 4.13	... 2.40	... 1.06	... 1.15	8	... 2.49
July	... 2.54	... 2.04	... 2.35	... 3.50	... 4.44	... 3.76	....69	... 1.83	... 1.12	... 3.04	... 3.80	25	... 2.53
August	... 3.06	... 4.72	... 3.32	... 3.18	... 3.68	... 4.28	... 2.20	... 4.47	... 2.17	... 2.73	... 3.27	16	... 3.38
September	... 2.20	... 1.30	... 6.70	... 3.88	... 2.50	....38	... 2.16	... 2.22	... 2.11	... 1.28	... 1.03	11	... 2.47
October	... 2.22	... 4.40	... 6.22	... 1.98	... 5.22	... 1.68	... 2.23	... 2.10	... 2.51	... 1.11	... 1.25	10	... 2.96
November	... 2.54	... 3.02	... 2.68	... 2.56	....86	... 3.61	... 3.34	... 2.65	... 3.40	... 4.52	....58	7	... 2.91
December	... 1.34	... 2.48	... 5.64	... 1.86	... 3.82	... 2.62	... 4.73	... 3.73	... 2.46	... 3.58	... 4.64	25	... 3.22
Totals ...	24.98	31.88	36.49	33.30	33.13	29.64	30.20	30.01	27.17	28.31	28.28	183	31.09
Total number of days on which Rain fell {	182	194	211	201	162	197	181	217	194	201	...	...	...

The following local particulars upon observations made at the Denton Holme Allotment Gardens were supplied to me by W. Egglestone, Esq.

RAINFALL IN DENTON HOLME.

The rainfall taken weekly at the Denton Holme Allotments, with a gauge of 5 inches, 2 feet above the ground level, and 57 feet above sea level, amounted last year to 27.40 inches, giving a weekly average of about 0.527. There have been 2 weeks during the year without rainfall, viz., June one and November one. The driest month was November, with a rainfall of 1.03 inches. The wettest was December with a fall of 4.19 inches. The evaporation gauged from an open vessel 2 feet above ground during the year was 29.16 inches. The greatest evaporation took place during the month of July, viz., 5.68 inches; the lowest in the month of February, viz., 0.51 inches.

CHIEF INSPECTOR'S ANNUAL REPORT.

TO THE CHAIRMAN AND MEMBERS OF THE HEALTH
COMMITTEE.

Gentlemen,

I have the honour of presenting my Annual
Report for the year 1915.

The inspection of the district has been carried out as
in previous years, but owing to the continued depletion of
the staff the details of work done have been much less
than in previous years. The general inspection of the
district has been maintained, and I am pleased to record
that it is in a satisfactory condition.

I am, Gentlemen,

Your obedient Servant,

C. W. HILL.

BAKEHOUSES.

There are 49 bakehouses upon the register, 4 of which are underground bakehouses.

These premises have been carefully supervised and 2 notices served to procure compliance with the provisions of the Factory and Workshop Act, viz.:—2 for lime-washing.

DAIRIES, COWSHEDS, AND MILKSHOPS.

There are 46 cow-keepers and milk-sellers upon the register. Their premises have been inspected, and the provisions of the Dairies, Cowsheds, and Milkshops Order as to air space and ventilation, cleansing of milk vessels, &c., have been enforced.

COMMON LODGING-HOUSES.

There are 2 licensed common lodging-houses within the City. Several visits have been paid to these houses and the conditions found were generally satisfactory. 1 house has been closed in consequence of the management being unsatisfactory.

FRIED FISH AND POTATO SHOPS.

There are 28 fried fish and potato shops on the register. These places have been frequently inspected, and the occupiers enjoined to observe cleanly methods in the management of their businesses.

ICE-CREAM SHOPS.

There are 6 ice cream shops in the City. They have been frequently inspected for the purpose of ascertaining their sanitary condition, and attention has also been paid to the articles used in the manufacture of this commodity.

OFFENSIVE TRADES.

The premises whereon offensive trades are carried on have received attention, and in each case the business was found to be conducted in a proper manner.

VANS USED AS DWELLINGS.

All the vans entering the City to attend fairs, &c., have been inspected, in order to ascertain their sanitary condition. On the whole they were found to be satisfactory.

URINALS AND GULLIES.

These have been cleansed by the staff of men employed for this purpose.

PUBLIC MARKETS.

The Public Markets and premises where food is prepared or exposed for sale have been regularly inspected, and the necessity of the observance of hygienic measures being taken have been constantly pointed out.

DISEASED AND UNSOUND FOOD.

The following table shows the amount of food seized or surrendered as being unfit for human consumption:—

Nature of Food Condemned.	Quantity.
Beef	22,972 lbs.
Mutton	535 „
Pork	90 „
Veal	111 „
Ham	159 „

PUBLIC ABATTOIR AND RAILWAY SLAUGHTER-HOUSES.

Frequent visits have been paid to the Public Abattoir, which has been kept in a satisfactory condition.

The Railway Slaughter-houses have also been frequently visited, but difficulty has been experienced in securing satisfactory conditions at the places.

The following tables give the number of animals killed during the years 1905—1915:—

PUBLIC SLAUGHTER-HOUSES.

Year.	Beasts.	Sheep and Lambs.	Calves.	Pigs.	Total.
1905	3,946	15,657	751	4,674	25,028
1906	4,059	15,274	797	4,139	24,269
1907	4,020	14,745	962	4,419	24,146
1908	3,772	14,911	760	4,064	23,507
1909	3,713	16,799	690	3,744	24,946
1910	3,562	16,491	716	3,444	24,213
1911	3,462	15,711	808	4,018	24,000
1912	3,294	15,499	653 & 1 goat	3,993	23,439
1913	3,441	15,424	654	3,412	22,931
1914	3,668	15,320	616	3,687	23,291
1915	3,510	14,529	440	4,113	22,592

L. & N. W. RAILWAY COY.'S SLAUGHTER-HOUSE.

Year.	Sheep.	Lambs.	Calves.	Pigs.	Total.
1913	38,922	...	2	...	38,924
1914	45,494	...	...	...	45,494
1915	...	...	...	..	Nil

N. E. RAILWAY COY.'S SLAUGHTER-HOUSE.

Year.	Beasts.	Sheep.	Lambs.	Calves.	Pigs.	Total.
1913	...	39,426	...	...	...	39,426
1914	...	56,779	...	...	...	56,779
1915	..	50,789	...	...	...	50,789

M. R. COY.'S SLAUGHTER-HOUSE.

Year.	Beasts.	Sheep.	Lambs.	Calves.	Pigs.	Total.
1913	...	20,289	...	...	...	20,289
1914	...	17,856	...	...	...	17,856
1915	...	66,451	20 (2 goats)	...	...	66,473

FOOD AND DRUGS.

During the year the articles set out in the following table have been purchased and submitted to the Public Analyst for analysis:—

The following table shows the number of articles purchased, result of analysis, and action taken:—

Article.	No. of Samples taken.	Genuine.	Adulterated.	Extent and Form of Adulteration.	Remarks.
Butter	6	6	...	...	...
Whiskey	3	1	2	(a) Sample 4.1° below legal limit (b) " 4.7° " "	Vendor cautioned by letter "
Cream	6	4	2	(a) Sample contained boric acid but bore no label (b) " " " "	Vendor cautioned " "
Cheese	7	7	...	...	...
Coffee	12	10	2	(a) Sample contained 9% chicory (b) " " 45% " "	Vendor cautioned Second sample purchased and submitted to the Analyst, who reported same to be genuine. Vendor cautioned regarding first sample
Lard	11	11	...	...	..
Baking Powder	11	11	...	...	...
Brandy	12	10	2	(a) Sample 8.7° below legal limit (b) " 9.2° " "	These samples were obtained from two houses, both of which were under the control of one person. Vendor, who was cautioned, has now retired from business
Number of Samples taken	68				
Genuine	...	60			
Adulterated	...		8		

FACTORY AND WORKSHOP ACTS.

There are 205 workshops upon the register, excluding bakehouses.

These workshops have been inspected, and where any infringement of the Factory and Workshop Acts were discovered, steps were taken to have the same remedied.

1 workshop was found to be without the Factory Abstract affixed, as prescribed by Section 128 of the Act. The Factory Inspector was notified of this offence.

5 complaints were received from H.M. Inspector of Factories relating to sanitary defects in factories and workshops.

The complaints were investigated and the defects remedied, viz.:—

Insufficient Water-closet Accommodation	...	2
Insufficient Screening of Women's Conveniences		1
Unsuitable Sanitary Convenience	... ..	1
Dirty Workshop	... ..	1
		—
		5
		—

OUT-WORKERS.

5 lists of out-workers have been received, as required by the home-work provisions of the Factory and Workshop Act, 1901.

In each instance the premises were visited and found to be in a satisfactory condition.

FACTORIES, WORKSHOPS, WORKPLACES AND HOMEWORK.

1.—Inspection of Factories, Workshops, and Workplaces.

INCLUDING INSPECTIONS MADE BY SANITARY INSPECTORS OR INSPECTORS OF
NUISANCES.

Premises.	Number of		
	Inspections.	Written Notices.	Prosecutions.
FACTORIES (Including Factory Laundries)	5	...	...
WORKSHOPS (Including Workshop Laundries)	332	9	...
WORKPLACES (Other than Outworkers' premises included in Part 3 of this Report)	...	...	...
TOTAL	337	9	...

2.—Defects found in Factories, Workshops, and Workplaces.

Particulars.	Number of Defects.			Number of Pro- secutions.
	Found.	Remedied.	Referred to H.M. Inspector.	
<i>Nuisances under the Public Health Acts :—</i>				
Want of cleanliness	8	8	...	...
Want of ventilation ... ..	...	...	...	..
Overcrowding... ..	...	...	...	...
Want of drainage of floors ...	...	...	...	...
Other nuisances	1	1	...	...
Sanitary accommodation :—				
{ Insufficient	2	2	...	...
{ Unsuitable or defective	2	2	...	...
{ Not separate for sexes	...	...	...	...
<i>Offences under the Factory and Workshop Acts :—</i>				
Illegal occupation of under- ground bakehouse (s. 101)...	...	..	...	..
Breach of special sanitary re- quirements for bakehouses (ss. 97 to 100) ... ..	...	...	...	...
Other offences (Excluding offences relating to outwork, which are in- cluded in Part 3 of this report)	...	.	...	...
Total	13	13	...	...

3.—Home Work.

NATURE OF WORK.	OUTWORKERS' LISTS, SECTION 107.					
	Lists received from Employers.					
	Sending twice in the year.			Sending once in the year.		
	Lists.	Outworkers.		Lists.	Outworkers.	
		Con-tractors.	Work-men.		Con-tractors.	Work-men.
Wearing apparel—						
Making, &c. ...	2	...	1	3	...	3
Cleaning and Washing ...	...	..	...	...	..	..
Total ...	2	...	1	3	...	3

4.—Registered Workshops.

Workshops on the Register (s. 131) at the end of the year				Number.
Important classes of work-shops, such as workshop bakehouses, may be enumerated here.	{	Workshops ...	...	181
		Domestic Workshops ...	...	24
		Bakehouses ...	...	49
		Total number of workshops on Register ...		254

5.—Other Matters.

Class.	Number.
Matters notified to H.M. Inspector of Factories :—	
Failure to affix Abstract of the Factory and Workshop Acts (s. 133, 1901)	1
Action taken in matters referred by H.M. Inspector as remediable under the Public Health Acts, but not under the Factory & Workshop Acts (s. 5, 1901) :	
Notified by H.M. Inspector	5
Reports (of action taken) sent to H.M. Inspector	5
Other .. .. .	...
Underground Bakehouses (s. 101) :—	
In use at the end of the year	4

SHOPS.

Frequent inspections have been made under the provisions of the Shops Act, 1912, both during the day and at night time.

HOUSE REFUSE REMOVAL.

14,992 loads of refuse have been collected and removed to the refuse tips and destructor, this being a decrease of 15 loads as compared with 1914.

GARBAGE.

175 loads of garbage have been removed by the Corporation carters from the Public Slaughter-houses, as compared with 181 in 1914.

INFECTIOUS DISEASES.

707 cases of infectious diseases, excluding tuberculous diseases and ophthalmia neonatorum were notified, as compared with 356 in 1914.

All the cases were investigated and reported upon to the Medical Officer of Health, and 326 cases were removed to the hospital for isolation.

DISINFECTION.

All the houses from which cases of infectious disease were removed to hospital, and rooms in which cases were isolated at home, were either sprayed with formaldehyde or cleansed under supervision of your inspectors.

The bedding, clothing, &c., used, or which had been in contact with the infected person, was also disinfected by steam.

The following is a list of articles disinfected :—

Mattresses	...	...	...	312
Beds	...	...	...	520
Bolsters and Pillows	...	...	...	1409
Blankets	...	...	...	1039
Quilts	...	...	...	667
Sheets	...	...	...	252
Carpets and Rugs	...	...	...	261
Wearing Apparel	...	...	...	1496
Miscellaneous Articles	...	...	...	1168
Total				7124

HORSES.

The number of horses under my charge at the Dépôt, Boustead's Grassing, is 20. 11 of these are engaged in house refuse removal, 8 are used for street cleansing purposes, and 1 is kept as a relief horse.

Summary of Sanitary Work performed in
connection with Inspection of District.

INSPECTIONS.	Number of	
	Premises Inspected.	Visits Paid.
HOUSES—		
Houses inspected in routine (H. & T. P. Act, 1909) - - - -	Nil	Nil
„ inspected on complaint - -	Numerous	
„ „ for special enquiry - -	—	—
Visits <i>re</i> Infectious Diseases - -	707	1200
Common Lodging-houses inspected -	3	62
Common Yards, Courts, & Alleys inspected	Numerous	
TRADE PREMISES—		
Bakehouses - - - -	49	52
Laundries - - - -	—	—
Stables - - - -	—	—
Cowsheds - - - -	35	49
Milkshops - - - -	11	15
Ice Cream Shops - - - -	6	12
Fried Fish Shops - - - -	28	68
Food Manufactories - - - -	15	18
Slaughter-houses - - - -	Numerous	
Markets - - - -	Numerous	
Other Factories - - - -	5	—
„ Workshops and Workplaces -	332	364
Chimneys observed (smoke nuisances) -	—	—
Visits after serving notice to supervise works in progress - - - -	Numerous	

Remedial Works.

HOUSES—

Houses disinfected	-	-	-	-	-	439
„ from which bedding, &c., was removed for disinfection	-	-	-	-	-	444
„ in which overcrowding abated	-	-	-	-	-	4
Dirty houses and bedding cleansed	-	-	-	-	-	1
Walls, damp and defective, remedied	-	-	-	-	-	4
Roofs, guttering, or spouting repaired	-	-	-	-	-	20

DRAINAGE—

New water-closets provided	-	-	-	-	-	18
Water-closets repaired and unstopped	-	-	-	-	-	22
Cisterns and flushing apparatus repaired	-	-	-	-	-	5
Sinks provided	-	-	-	-	-	1
Drains reconstructed	-	-	-	-	-	—
„ tested by water, smoke, or chemicals	-	-	-	-	-	—
„ repaired and unstopped	-	-	-	-	-	31
New gullies provided	-	-	-	-	-	2
Downspouts disconnected from sewer	-	-	-	-	-	—

WATER—

Samples taken for analysis	-	-	-	-	-	8
Wells closed	-	-	-	-	-	—
Houses connected with water mains	-	-	-	-	-	—
Watercourse cleansed	-	-	-	-	-	1

YARDS—

Yards paved and repaired	-	-	-	-	-	6
Accumulations of manure, &c., removed	-	-	-	-	-	2

TRADE PREMISES—

Workshops cleansed and limewashed	-	-	-	7
Bakehouses ,, ,,	-	-	-	2
Other improvements affected	-	-	-	3

FOOD—

Carcases condemned	-	-	-	-	72
Other foods	-	-	-	-	159 lbs. ham

VARIOUS—

Refuse tips (visits)	-	-	-	-	Numerous
Temporary or movable dwellings inspected	-	-	-	-	,,
Birds and animals improperly kept	-	-	-	-	4
Smoke emission abated	-	-	-	-	—

LEGAL WORK—

Notices served, informal	-	-	-	-	111
,, statutory	-	-	-	-	1
Notices complied with	-	-	-	-	108
,, not ,,	-	-	-	-	4

